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**Lee**

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(54) **METHOD TO RELIEVE MENSTRUAL PAIN**

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(52) **U.S. Cl.**

CPC ..... **A61F 5/30** (2013.01); **A61F 5/0193** (2013.01)

(58) **Field of Classification Search**

USPC ..... 2/464, 414, 319; 602/19; 128/99.1, 128/101.1, 106.1, 107.1, 108.1, 112.1

See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

35,038 A 4/1862 Pierce  
1,600,178 A 9/1926 Hussey  
2,018,981 A 10/1935 Tietjen

D99,529 S 5/1936 Spanel  
D134,791 S 1/1943 Selver  
2,453,370 A 11/1948 Hittenberger  
2,493,406 A 1/1950 Hicks  
2,497,443 A 2/1950 Eatman  
2,552,475 A 5/1951 Austlid  
2,590,212 A 3/1952 Samuels  
2,644,449 A 7/1953 Champagne  
2,652,051 A 9/1953 Hoover  
2,654,366 A 10/1953 Miller  
2,813,526 A 11/1957 Beebe  
2,828,737 A 4/1958 Hale  
3,071,133 A 1/1963 Eisen  
3,351,053 A 11/1967 Stuttle  
3,393,674 A 7/1968 Schaffer  
3,396,264 A 8/1968 Murphy et al.  
3,500,014 A 3/1970 Longo  
3,501,616 A 3/1970 Arron  
3,518,995 A 7/1970 Claff  
3,548,817 A 12/1970 Mittach  
3,577,986 A 5/1971 Regent  
3,680,563 A 8/1972 Forrest  
3,797,501 A 3/1974 Di Tullio

(Continued)

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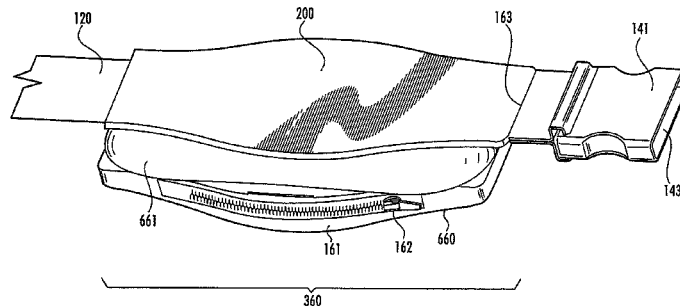
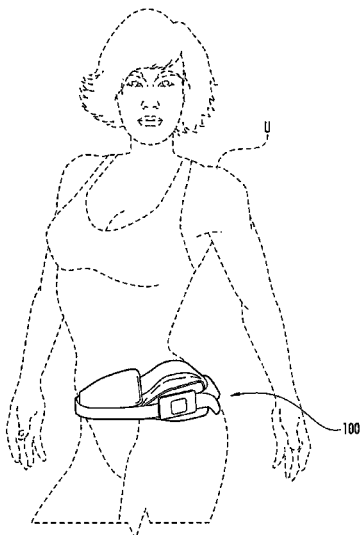
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(57) **ABSTRACT**

A method to relieve menstrual cramping which includes the step of placing one or more symmetrical tapered pads having an inner and outer side, each outer side being semi-rigid and each inner side being flexible and compressible. The outer side of each pad is affixed to one or more straps having a first and corresponding second end. A fastener is connected so to attach the first end of each strap to a corresponding second fastener at the second end of each strap as an additional step. The apparatus also includes a constricting device (such as a ratchet) located on or proximate to one pad sufficient to create a compression force through each strap when the first and corresponding second fasteners connect to one another.

**37 Claims, 24 Drawing Sheets**



(56)

**References Cited**

## U.S. PATENT DOCUMENTS

4,122,552 A	10/1978	Tedford	5,986,163 A	11/1999	Augustine
D258,770 S	4/1981	Stern	6,010,527 A	1/2000	Augustine et al.
4,577,622 A	3/1986	Jennings	6,013,097 A	1/2000	Augustine et al.
4,580,555 A	4/1986	Coppess	6,045,518 A	4/2000	Augustine
4,622,957 A	11/1986	Curlee	6,065,166 A	5/2000	Sharrock
4,671,264 A	6/1987	Frangi	6,066,109 A	5/2000	Buser et al.
4,675,918 A	6/1987	O'Brien	6,071,254 A	6/2000	Augustine
4,681,113 A	7/1987	Coplans	6,093,160 A	7/2000	Augustine et al.
4,715,364 A	12/1987	Noguchi	6,099,490 A	8/2000	Turtzo
4,912,813 A	4/1990	Muller et al.	6,110,197 A	8/2000	Augustine et al.
4,937,887 A	7/1990	Schreiner	6,213,966 B1	4/2001	Augustine
4,957,105 A	9/1990	Kurth	6,217,535 B1	4/2001	Augustine
4,993,409 A	2/1991	Grim	6,235,049 B1	5/2001	Nazerian
5,129,647 A	7/1992	Castellanos	6,241,697 B1	6/2001	Augustine
5,363,863 A	11/1994	Lelli et al.	6,241,698 B1	6/2001	Augustine
5,383,893 A	1/1995	Daneshvar	6,248,084 B1	6/2001	Augustine et al.
5,383,920 A	1/1995	Sikes	6,264,622 B1	7/2001	Augustine
5,388,274 A	2/1995	Glover et al.	6,267,740 B1	7/2001	Augustine et al.
5,407,422 A	4/1995	Matthijas et al.	6,293,917 B1	9/2001	Augustine et al.
5,437,618 A	8/1995	Sikes	6,328,627 B1	12/2001	Smith
5,476,492 A	12/1995	Unrug	6,406,448 B1	6/2002	Augustine
5,486,680 A	1/1996	Lieberman	6,407,307 B1	6/2002	Augustine
5,528,775 A	6/1996	Marenda	6,419,651 B1	7/2002	Augustine
5,551,093 A	9/1996	Stricker	6,423,018 B1	7/2002	Augustine
5,588,186 A	12/1996	Ko	6,460,195 B2	10/2002	Wang
5,628,721 A	5/1997	Arnold et al.	6,465,708 B1	10/2002	Augustine
D380,051 S	6/1997	Davis et al.	6,468,295 B2	10/2002	Augustine et al.
5,636,377 A *	6/1997	Wiener ..... 2/465	6,580,012 B1	6/2003	Augustine et al.
5,647,824 A	7/1997	Levenson	6,592,428 B2	7/2003	Smith
5,690,122 A	11/1997	Weber-Unger	6,605,051 B2	8/2003	Augustine
5,728,055 A	3/1998	Sebastian	6,613,034 B2	9/2003	Nozaki et al.
5,758,367 A	6/1998	Lopez et al.	6,634,533 B2	10/2003	Thompson et al.
5,782,781 A	7/1998	Nagaoka	6,783,506 B2	8/2004	Seering et al.
5,799,650 A	9/1998	Harris	6,820,574 B2	11/2004	Sharpe
5,817,145 A	10/1998	Augustine et al.	6,840,915 B2	1/2005	Augustine
5,830,168 A	11/1998	Finnell et al.	6,921,374 B2	7/2005	Augustine
5,893,368 A	4/1999	Sugerman	6,936,018 B2 *	8/2005	Chalek ..... 602/2
5,913,410 A	6/1999	Tsuchiya	6,987,209 B2	1/2006	Augustine et al.
5,947,914 A	9/1999	Augustine	7,008,389 B2	3/2006	Krieg et al.
5,954,680 A	9/1999	Augustine	7,066,181 B2	6/2006	West
5,964,721 A	10/1999	Augustine	7,122,046 B2	10/2006	Augustine et al.
5,964,723 A	10/1999	Augustine	2005/0251075 A1	11/2005	Smith
			2006/0254598 A1	11/2006	Saul

\* cited by examiner

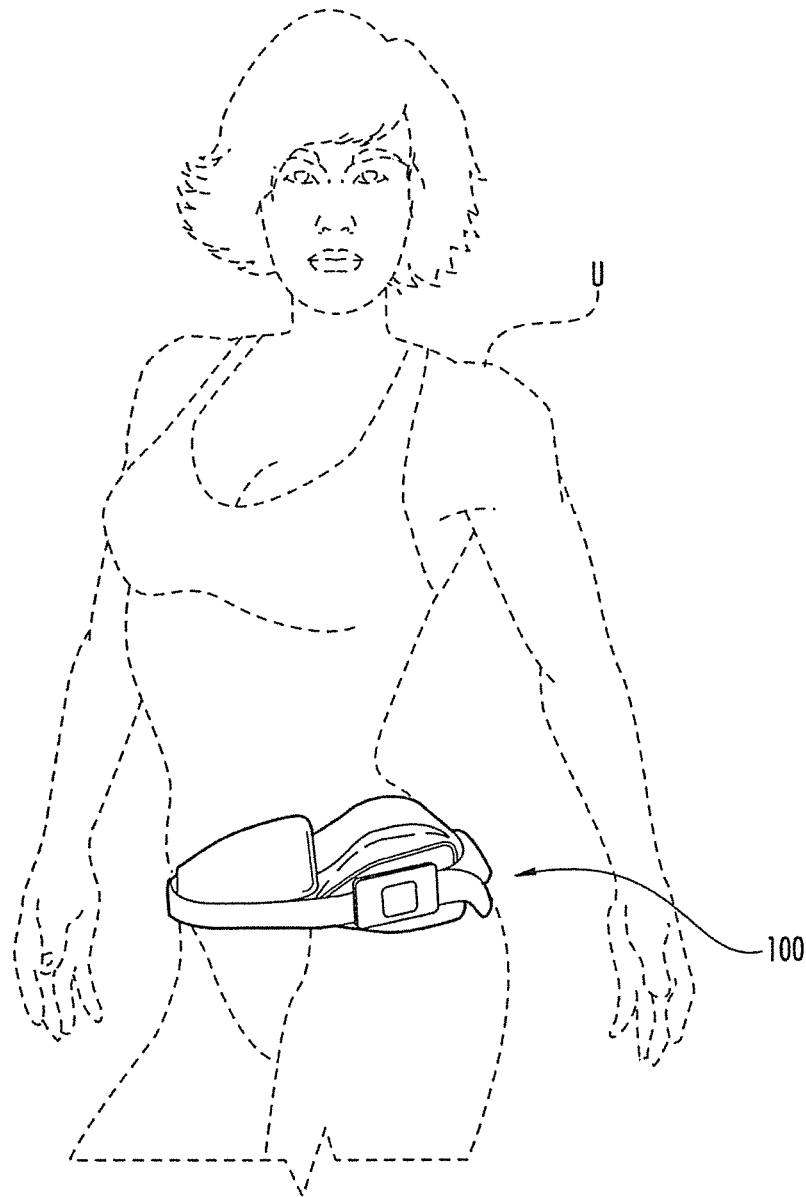


FIG. 1A

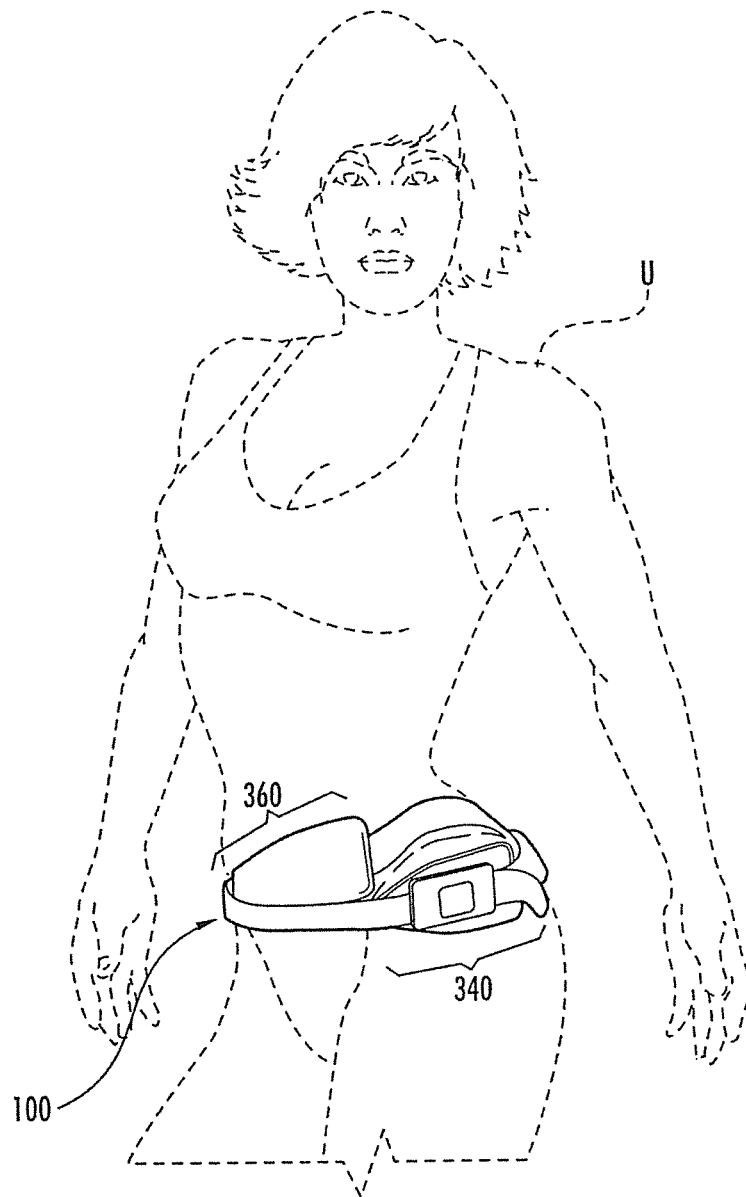
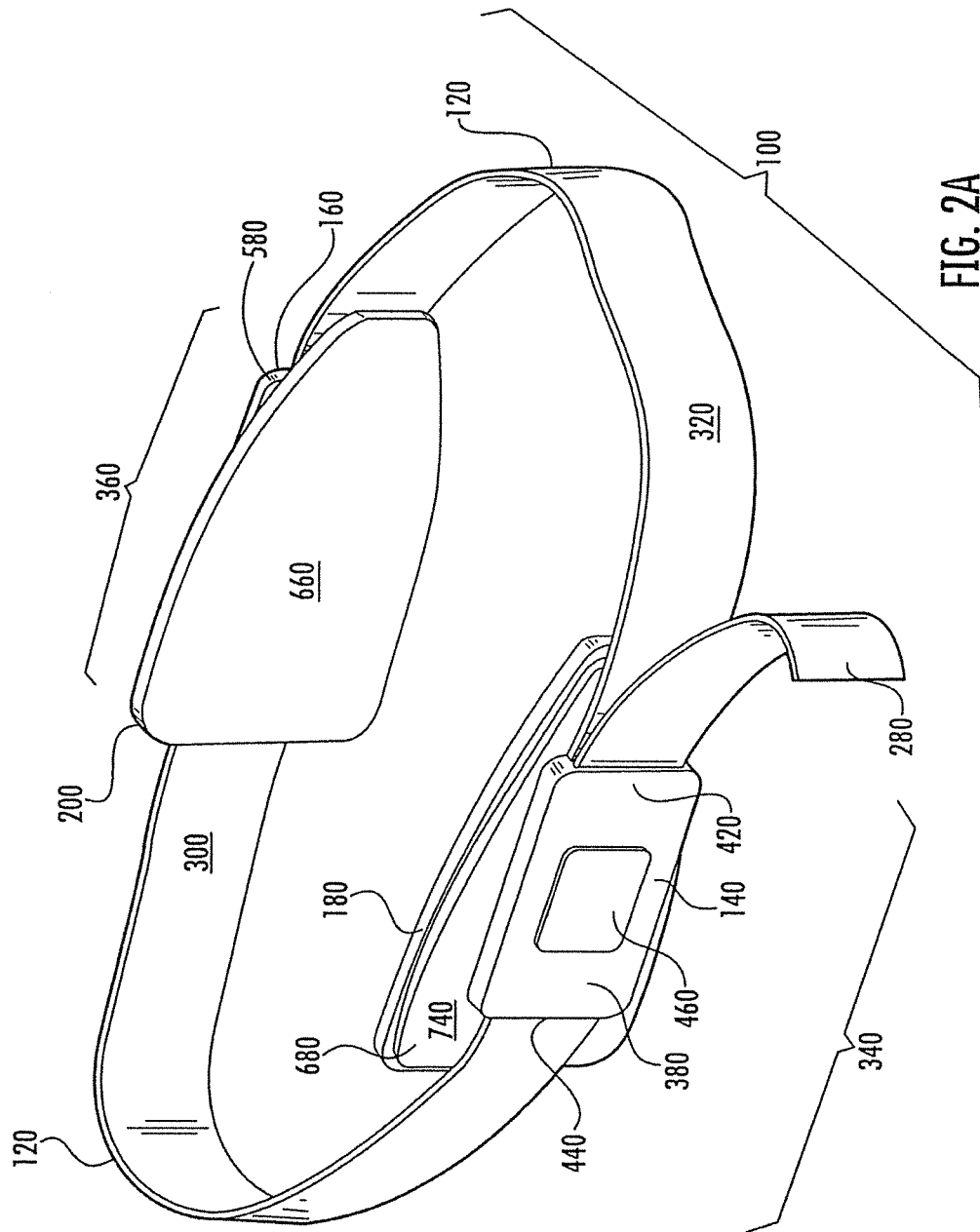
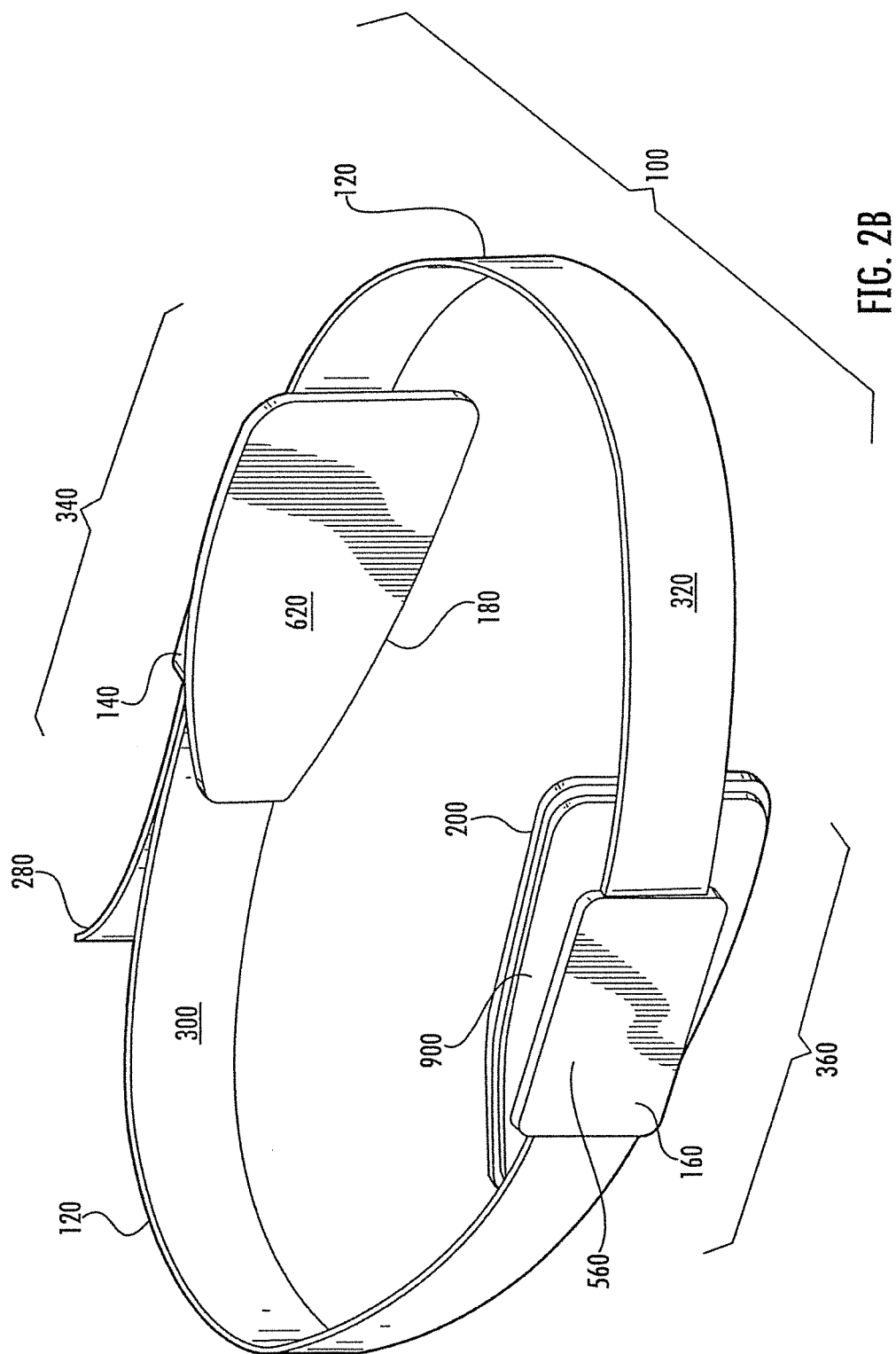
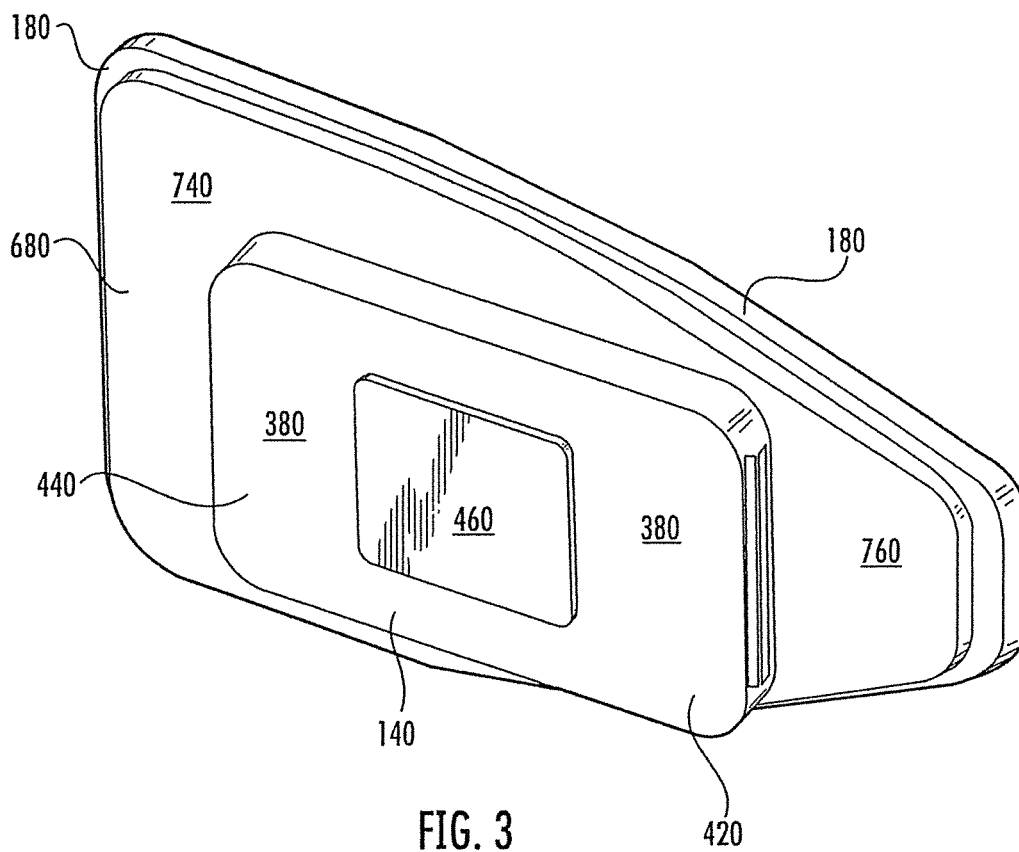


FIG. 1B







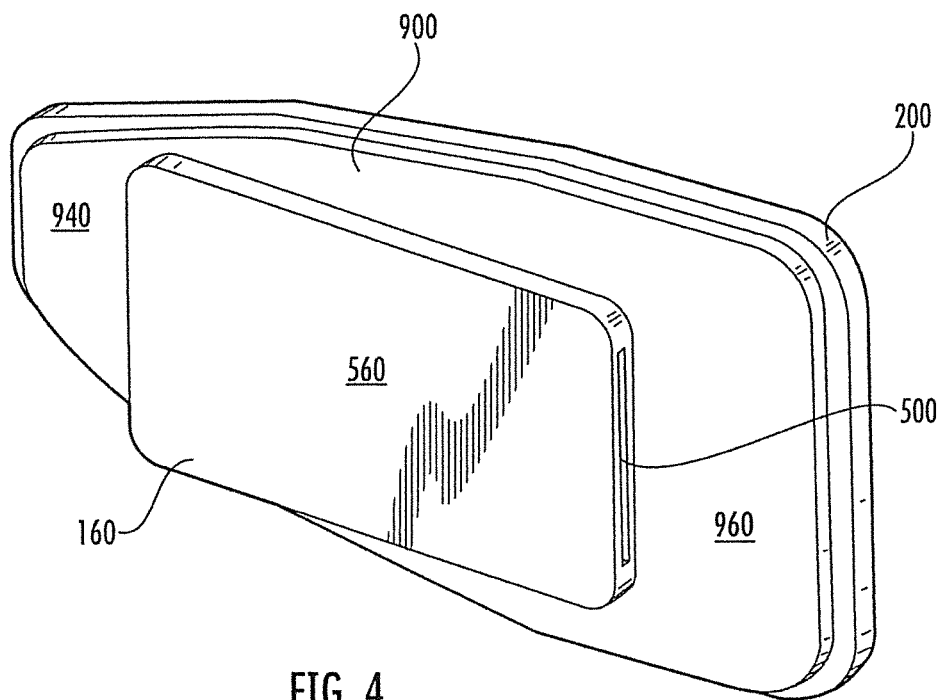
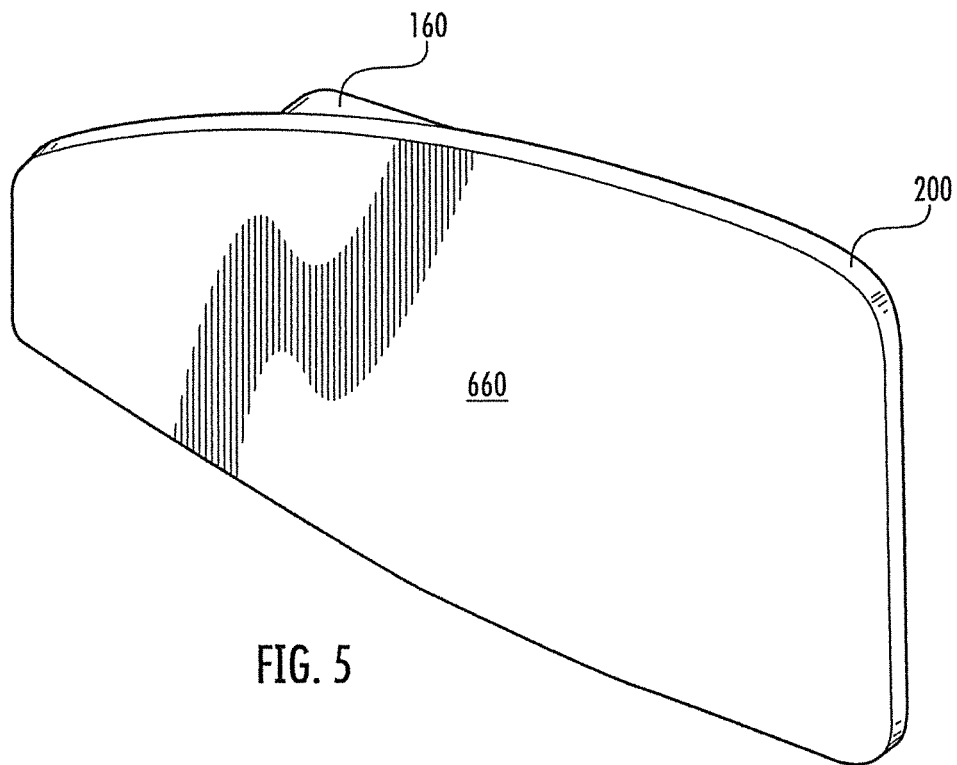
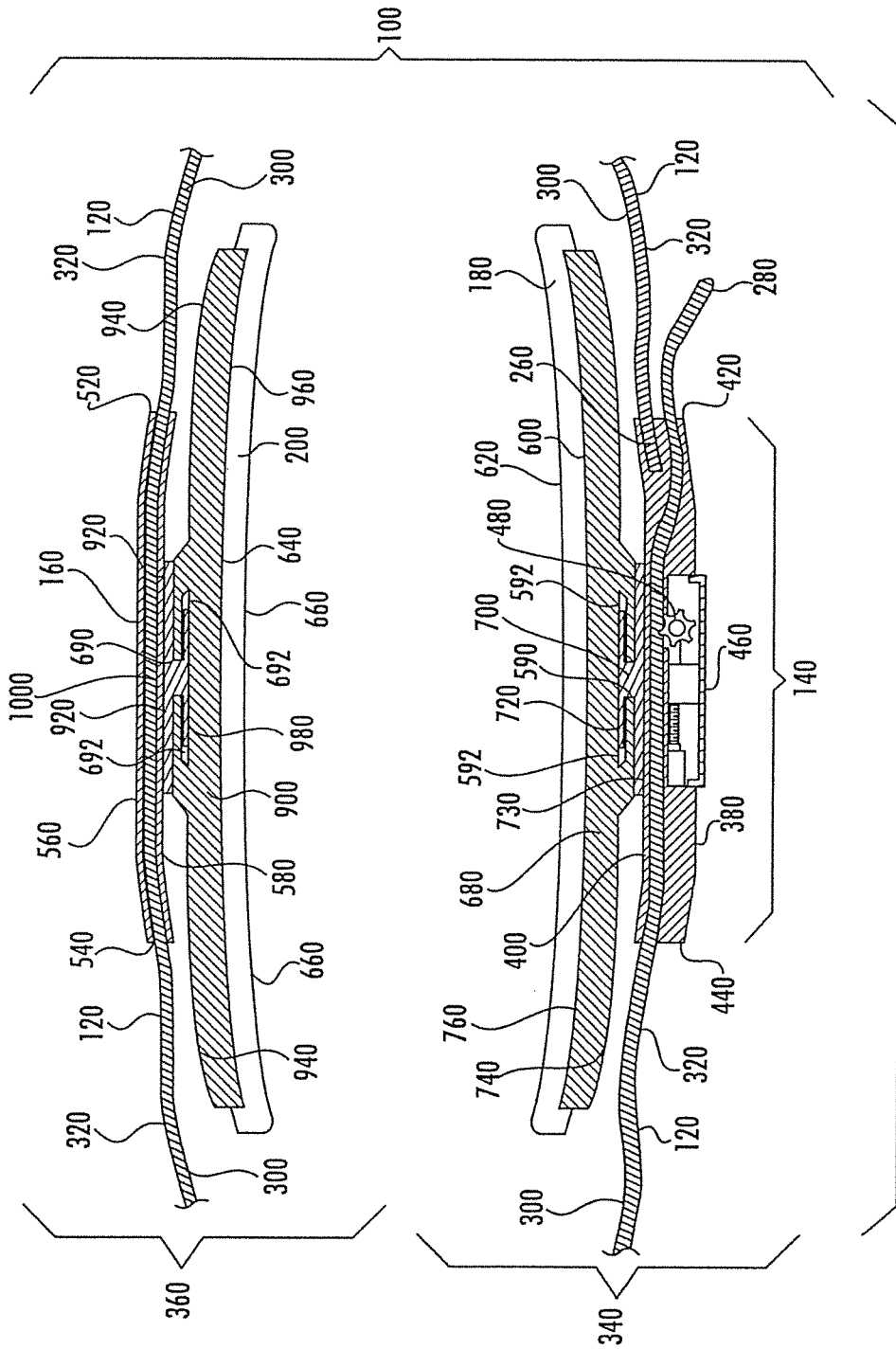


FIG. 4







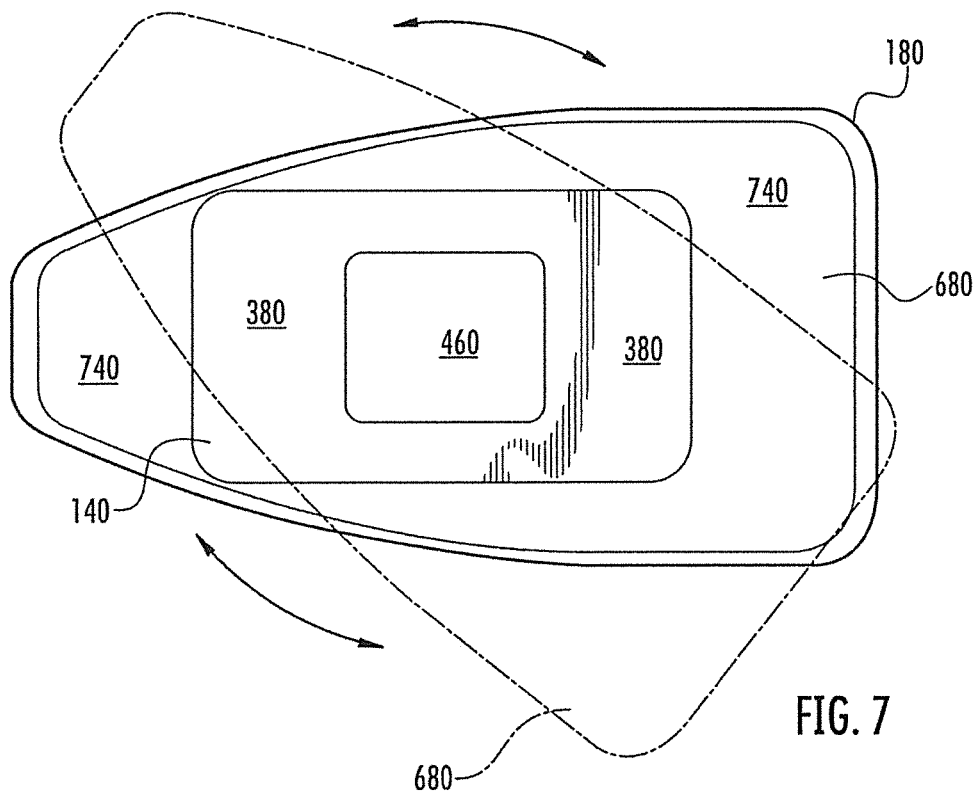
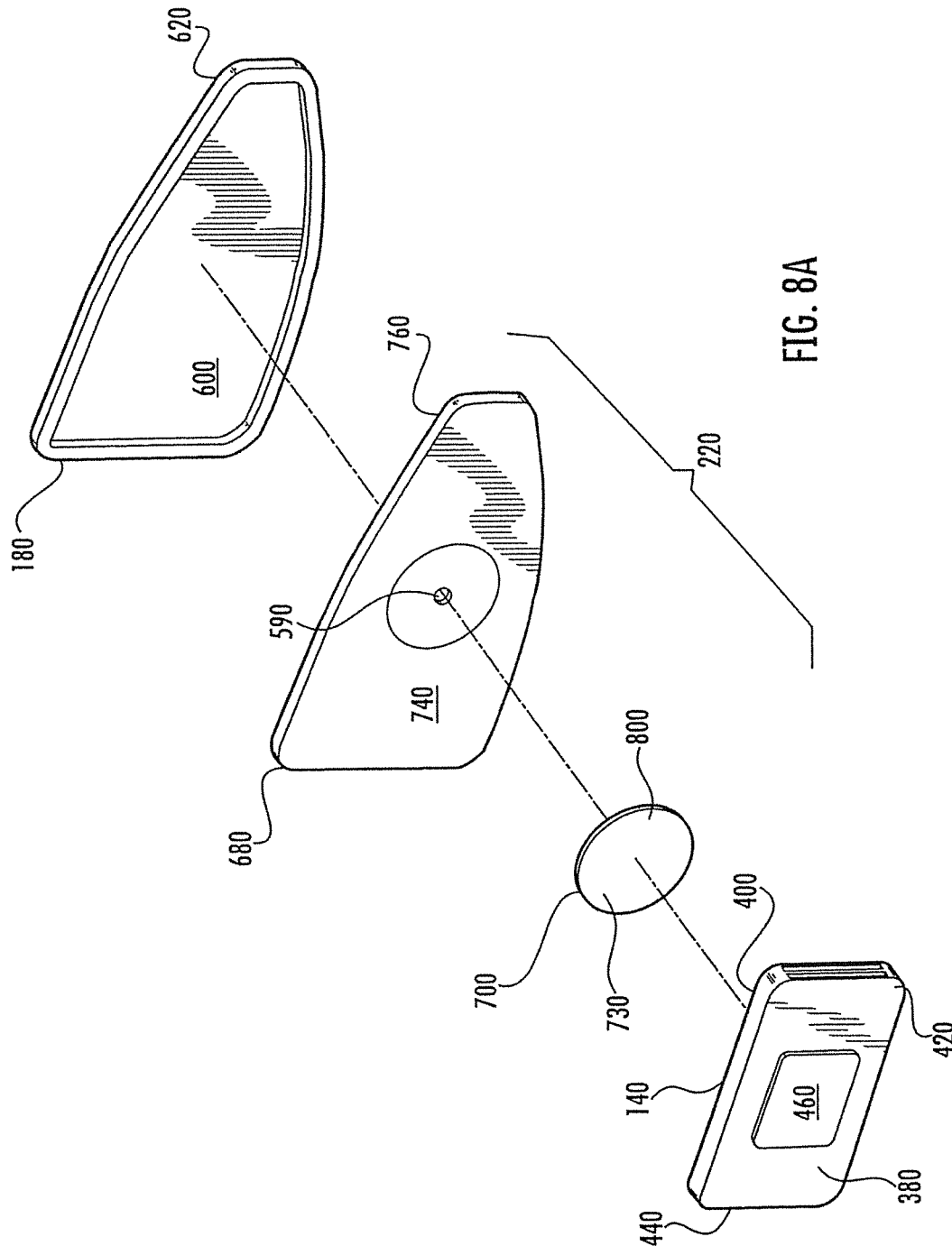
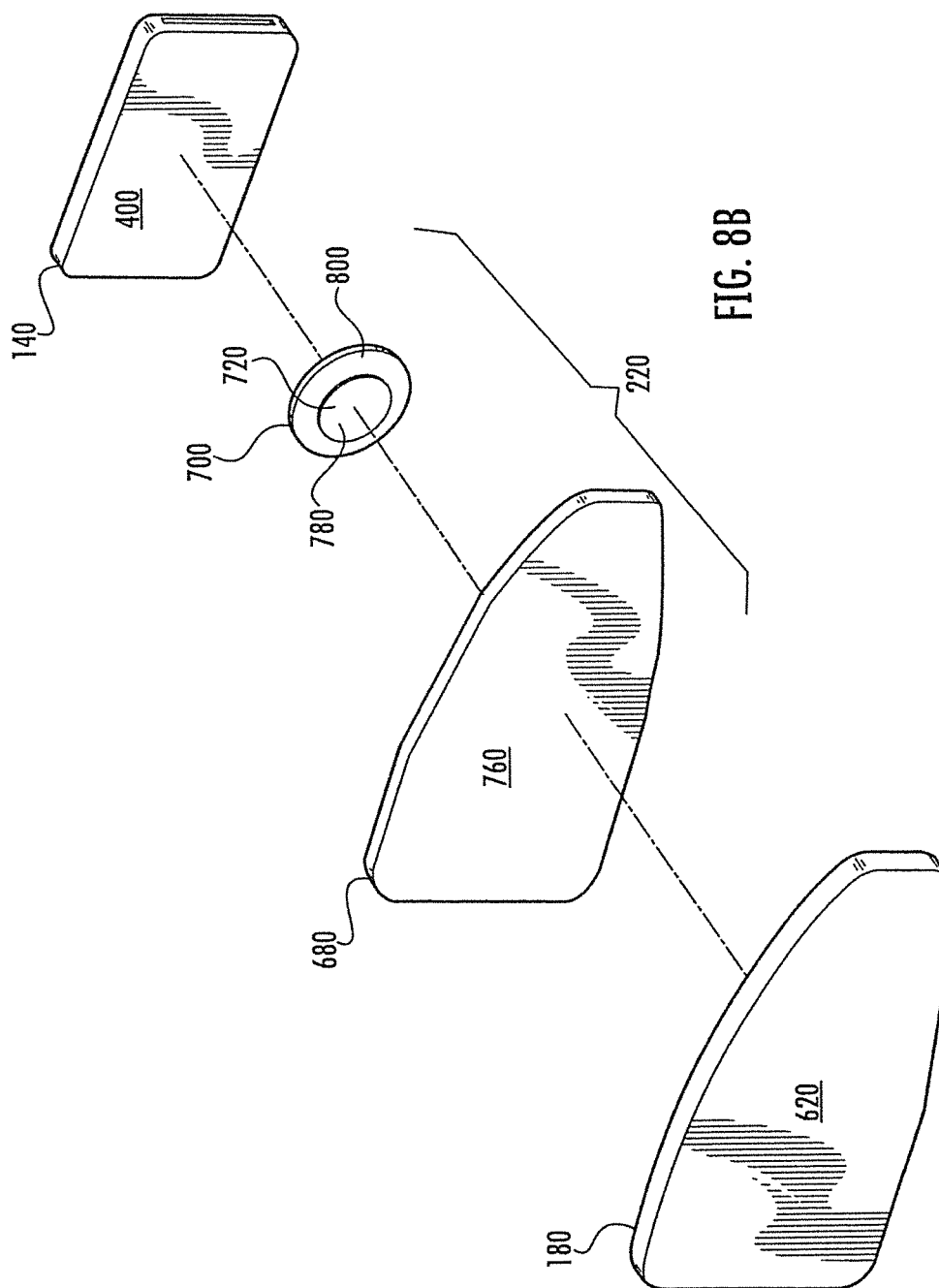


FIG. 7





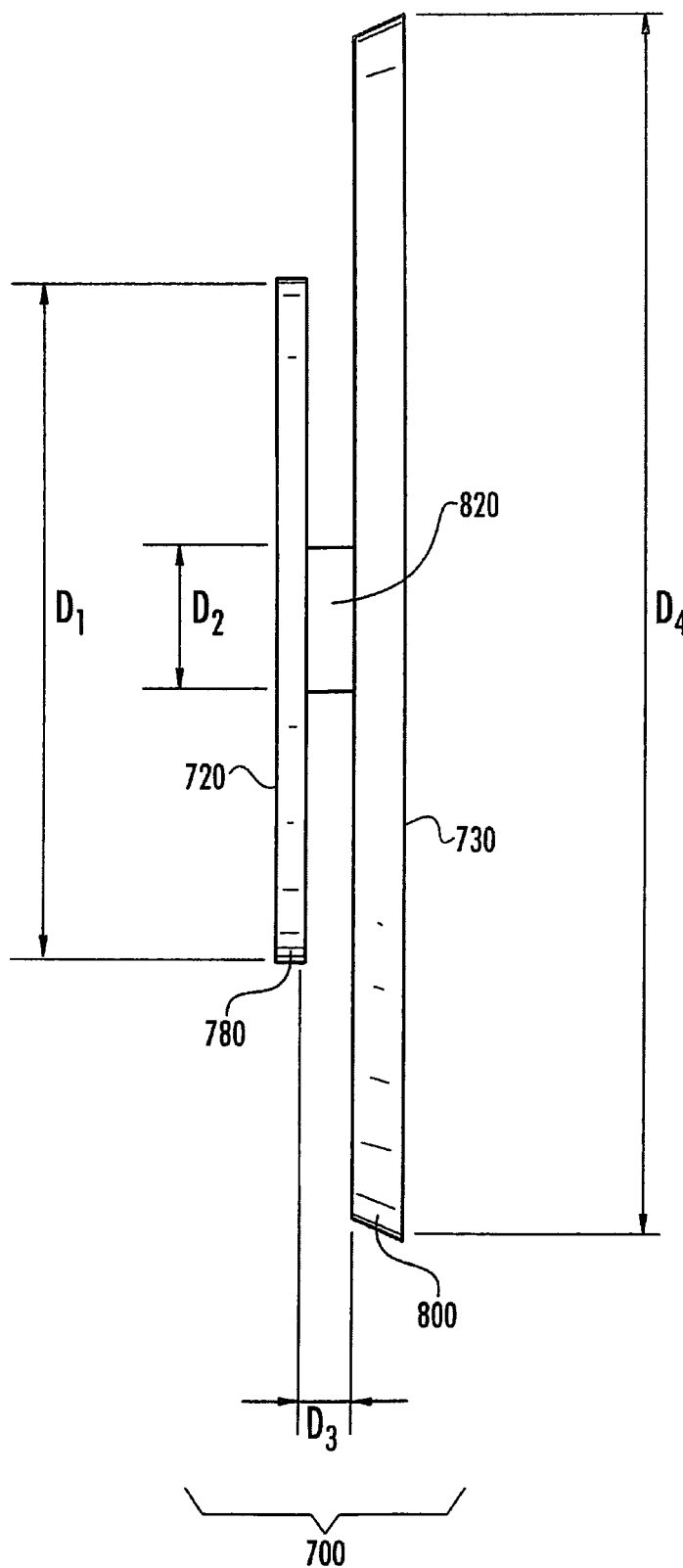


FIG. 9A

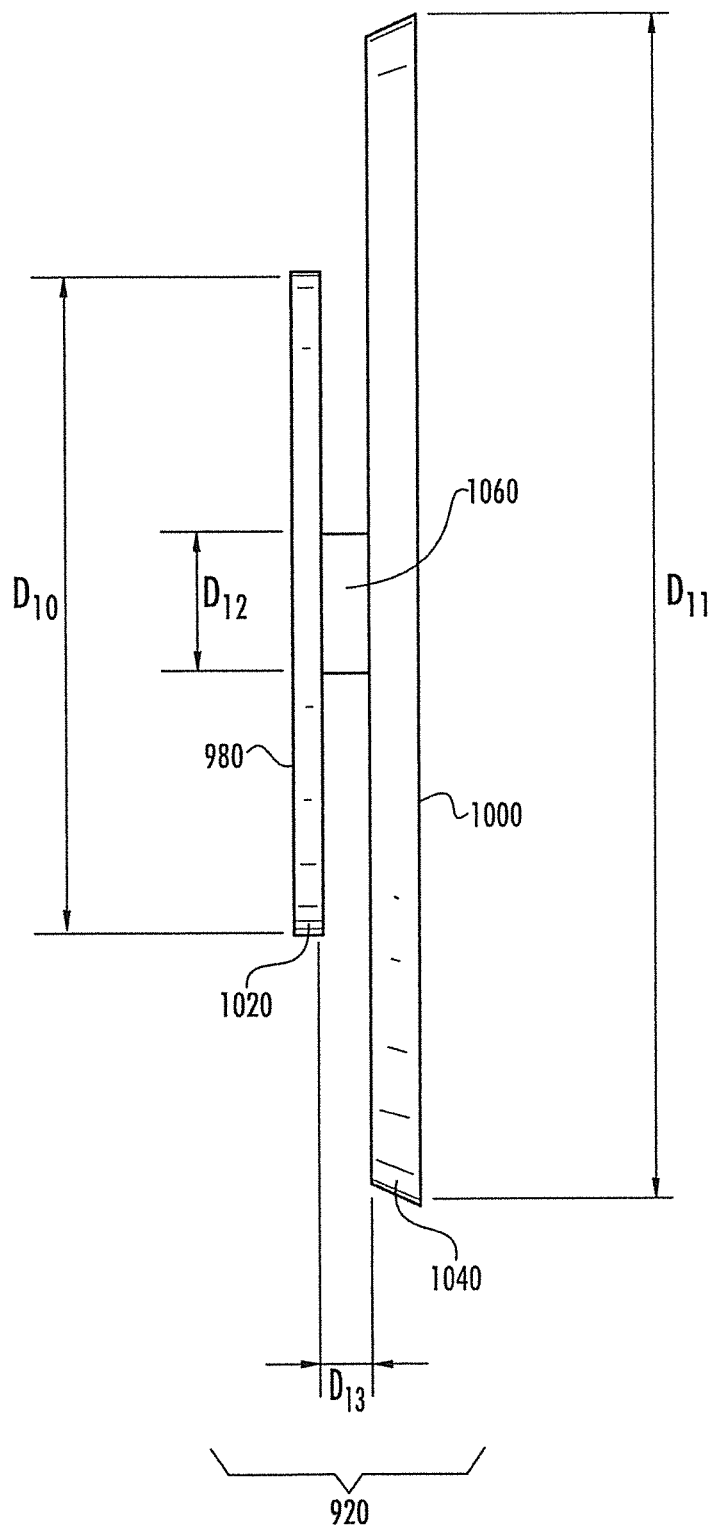
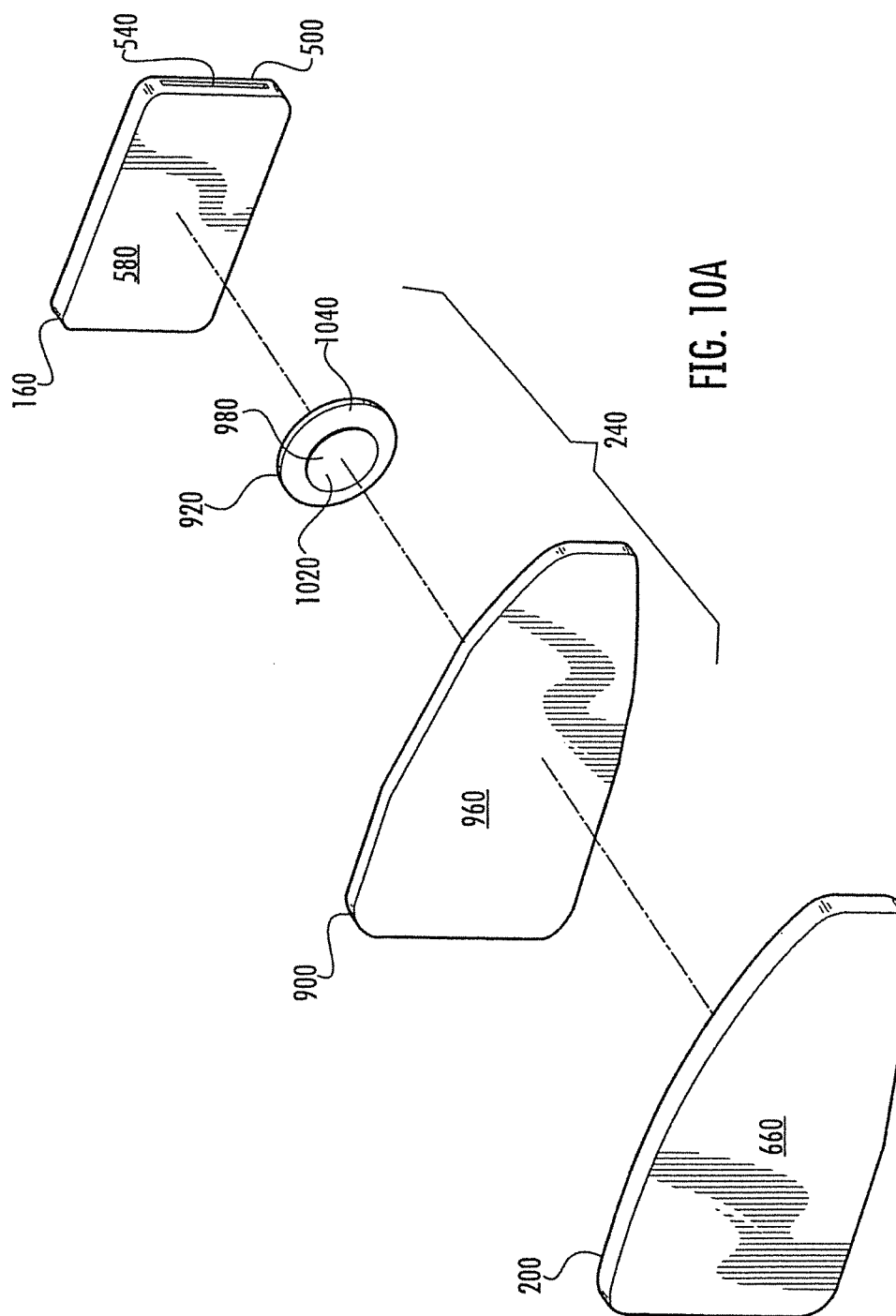
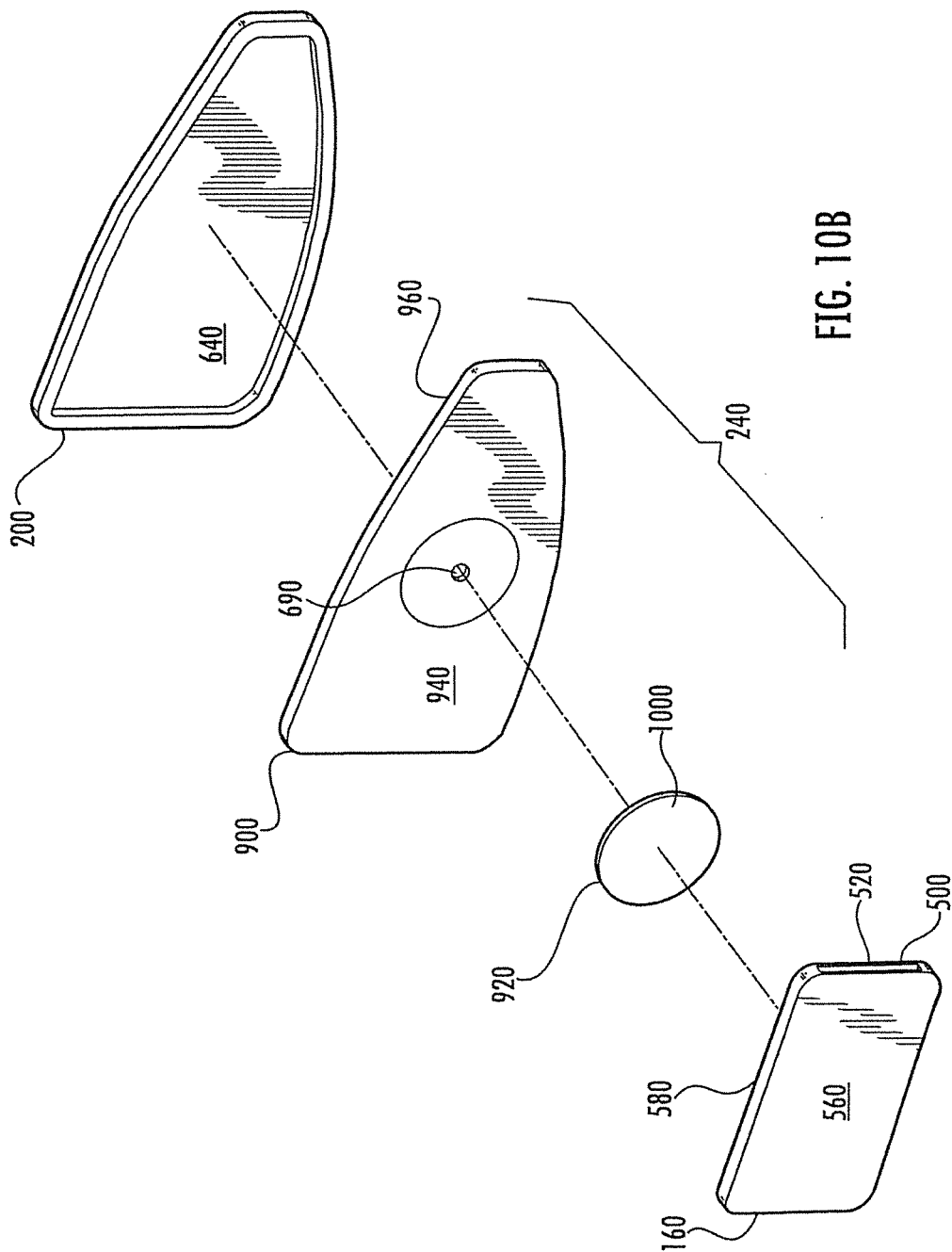
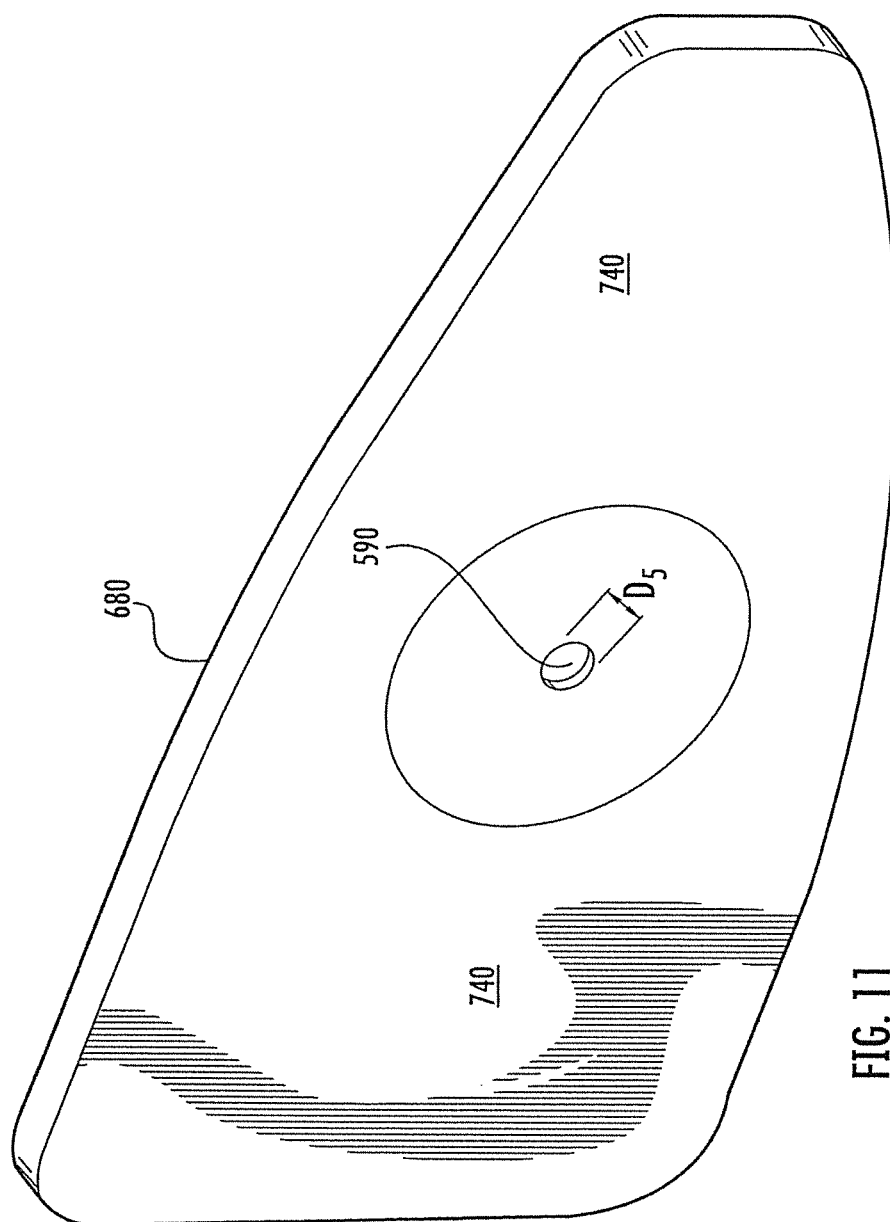


FIG. 9B









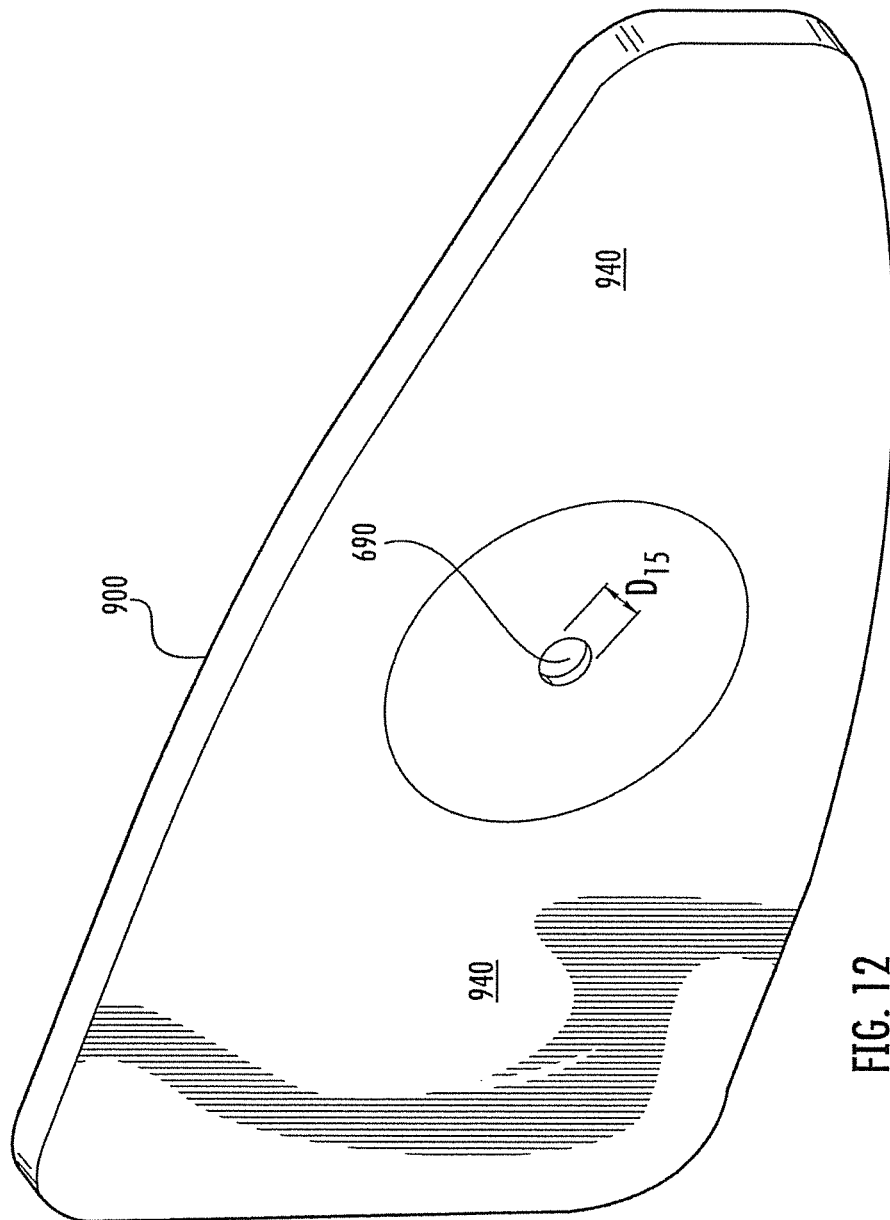


FIG. 12

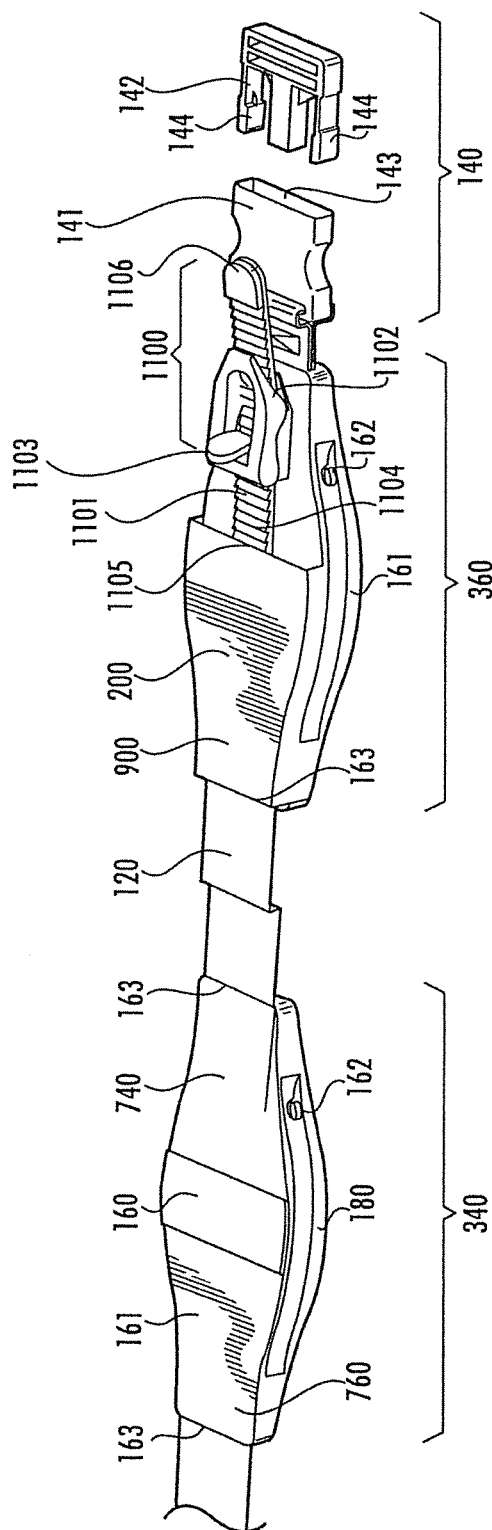


FIG. 13A

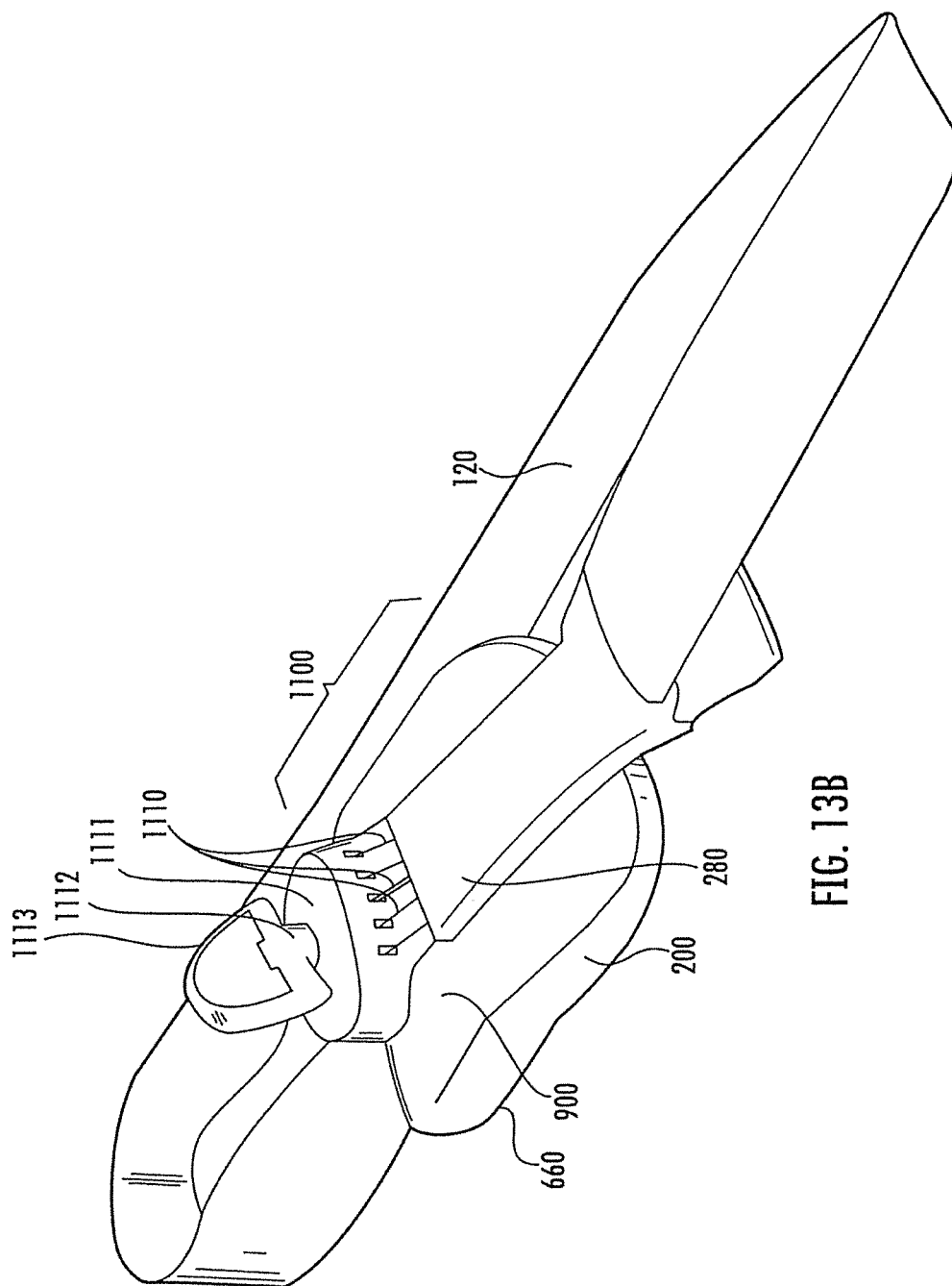
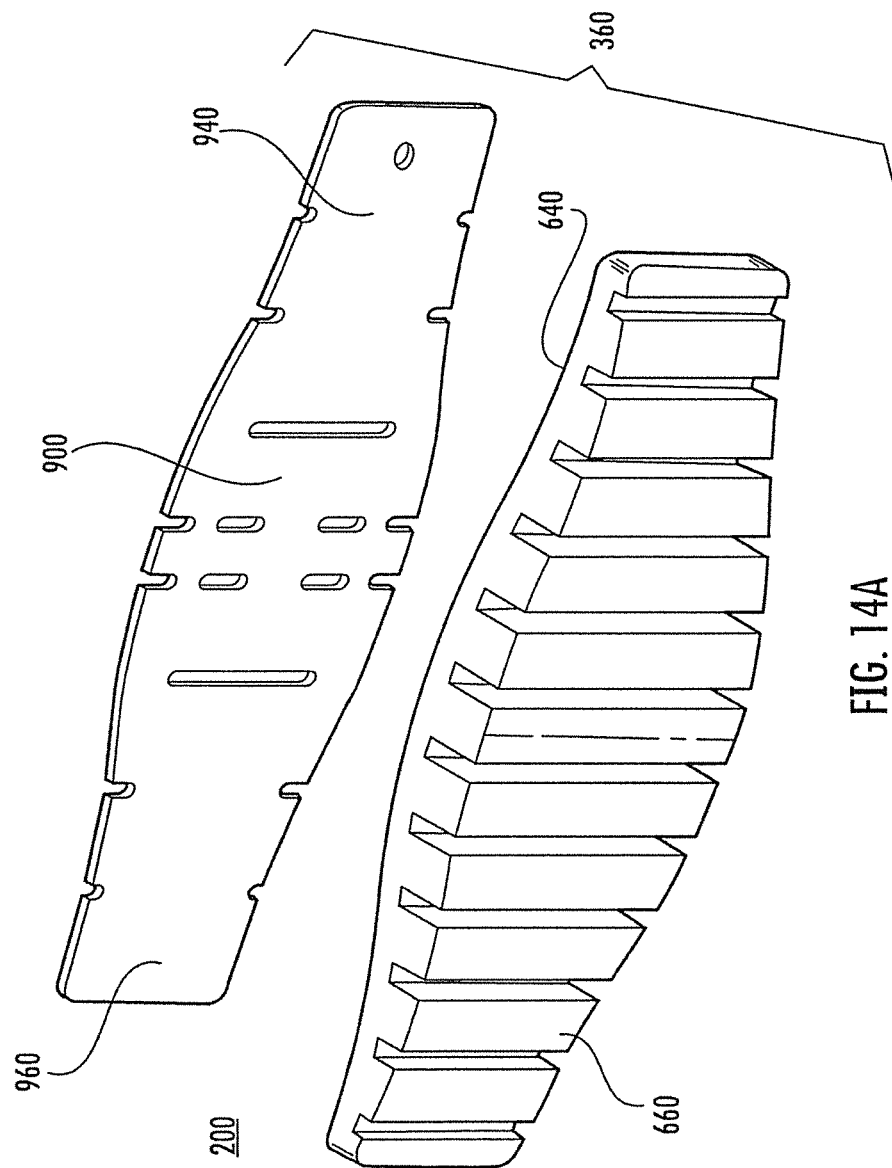


FIG. 13B



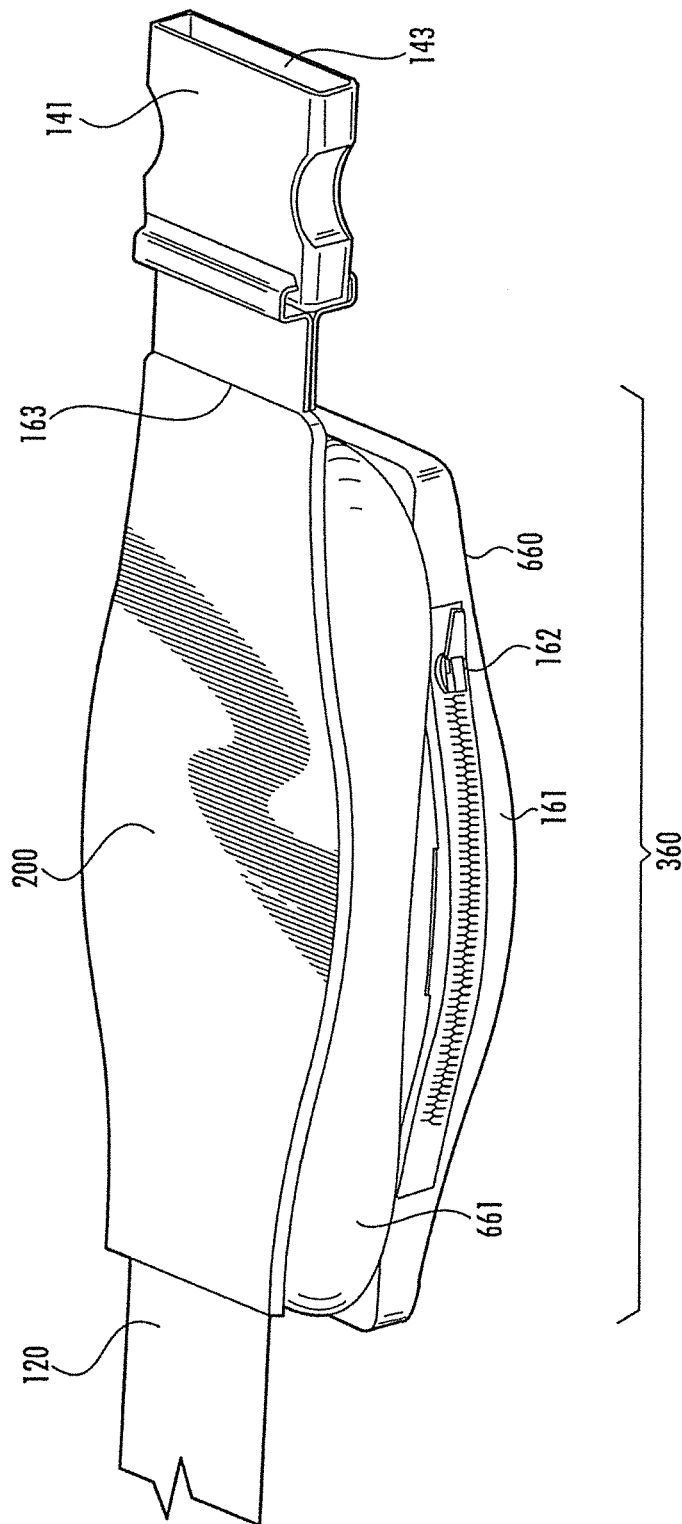


FIG. 14B

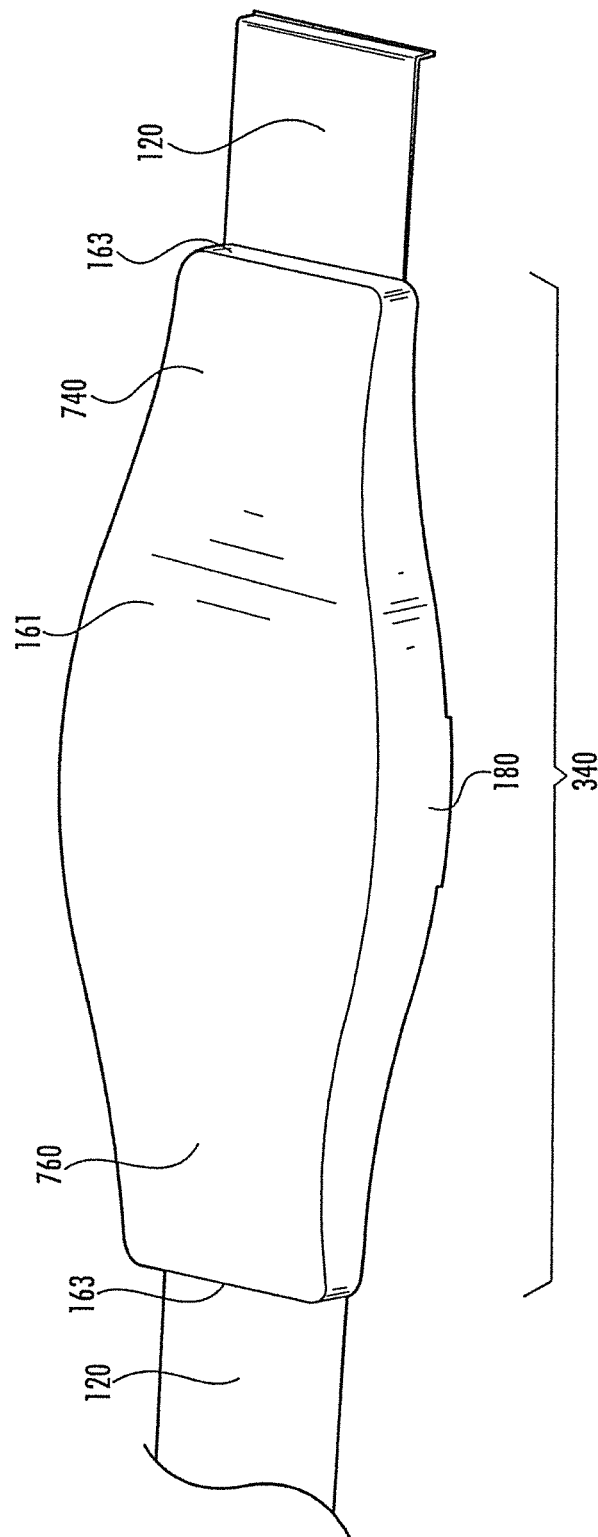


FIG. 15



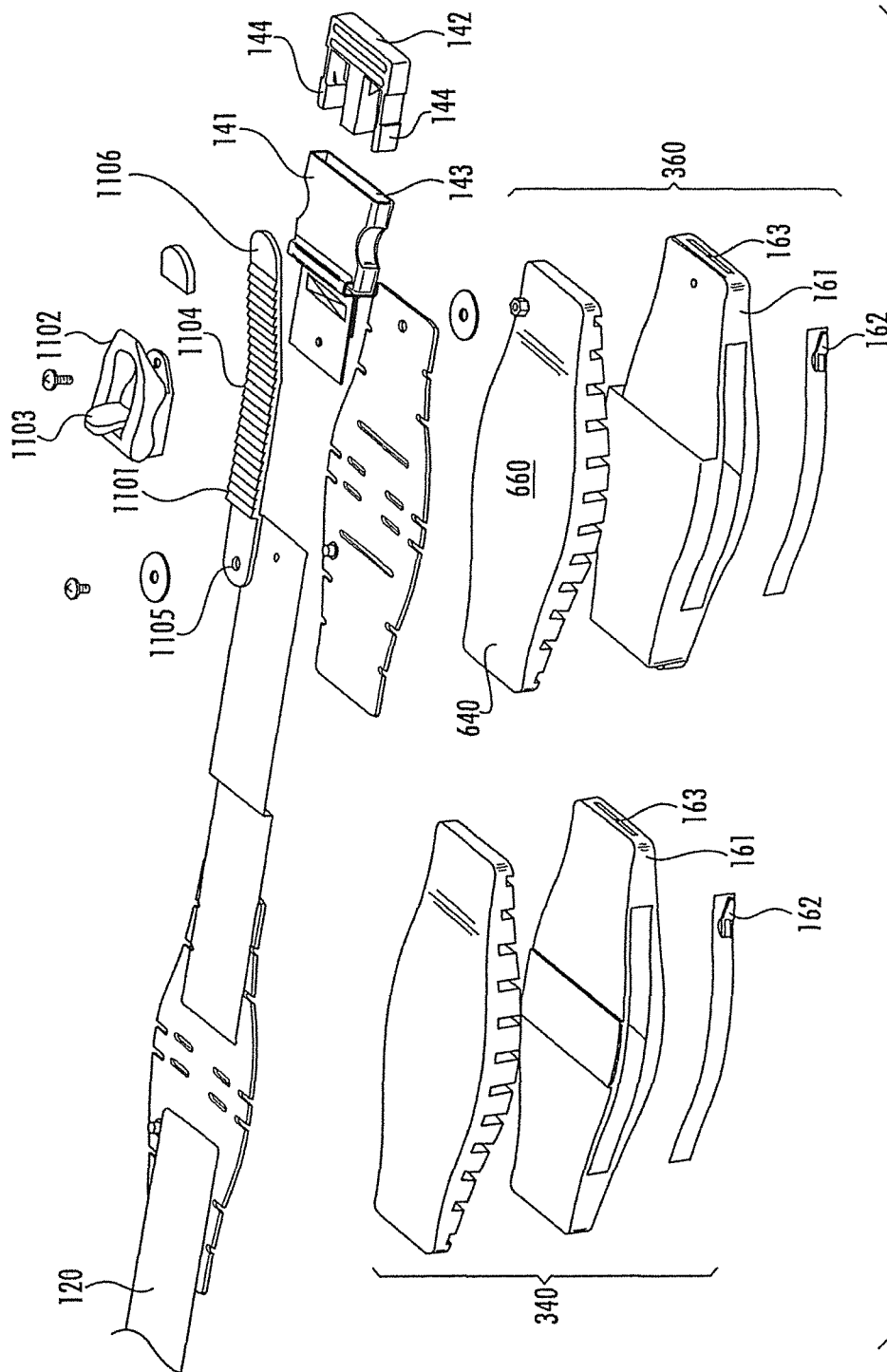
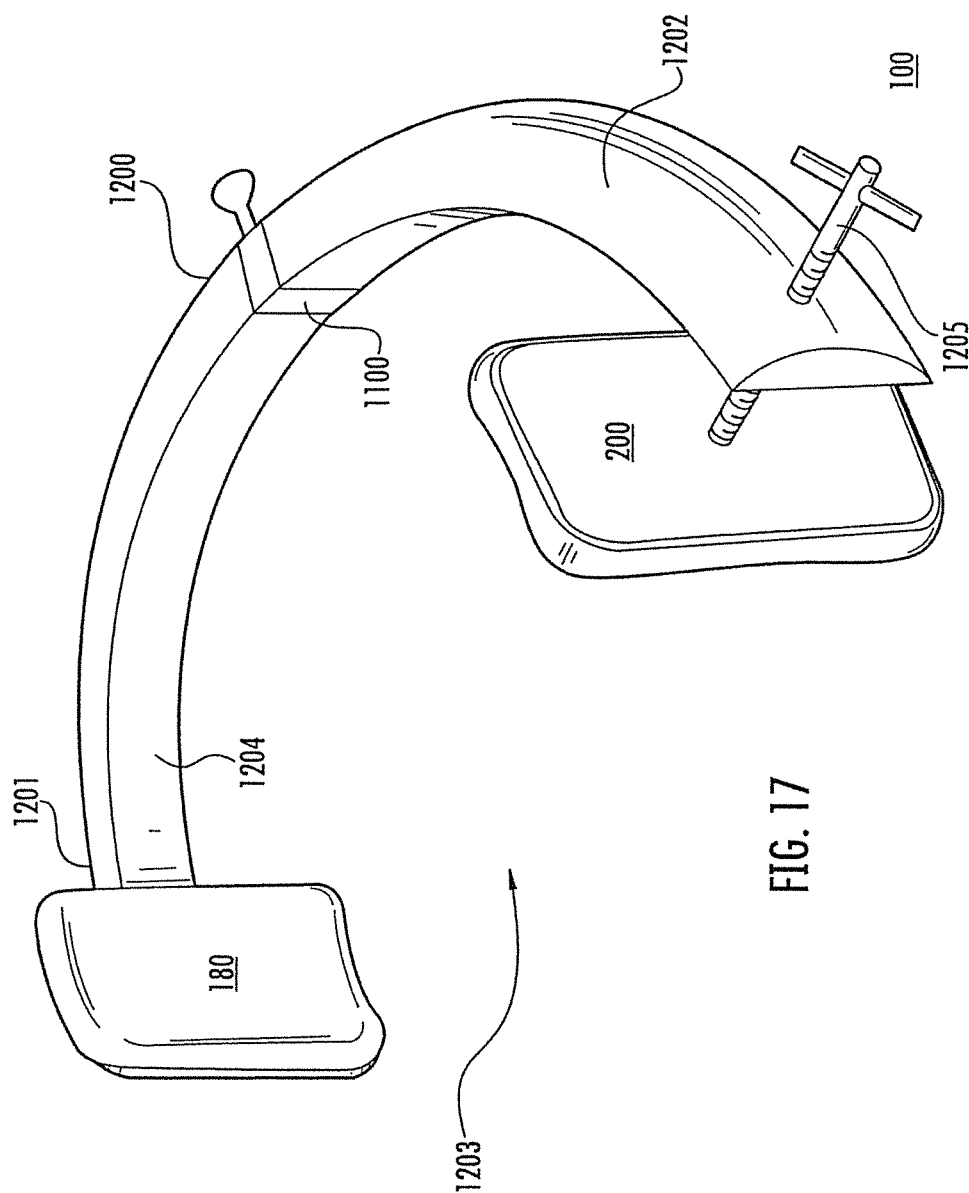


FIG. 16



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**METHOD TO RELIEVE MENSTRUAL PAIN****CROSS-REFERENCE TO RELATED APPLICATIONS**

This is a Continuation in Part of application Ser. No. 12/404,655 filed on Mar. 16, 2009, now U.S. Pat. No. 8,156,932, entitled "Method and Apparatus to Relieve Menstrual Pain," which is a Continuation in part of application Ser. No. 11/753,562 filed on May 24, 2007, now abandoned, entitled "Therapeutic Compression Belt," which are incorporated by reference herein.

**FIELD OF THE INVENTION**

The present invention relates to a method to relieve menstrual pain. More specifically, the invention relates to a method to relieve menstrual cramping through applying pressure to the exterior of the female body proximate to the hips.

**BACKGROUND OF INVENTION**

Menstrual cramping (dysmenorrhea) is a medical condition characterized by severe uterine pain during menstruation. The condition is the result of contractions of the uterus as it expels unneeded contents and also from the passage of clotted blood through the cervix. The underlying pain results when the uterine muscles contract too hard or fast resulting in severe discomfort around the abdomen, back, and often the legs.

The condition most commonly affects women between the ages of 20 through 24. While most women only experience minor pain during menstruation, menstrual cramps are often severe enough to limit normal activities or may require medication. Menstrual cramping may precede menstruation by several days or may accompany it. More typically, such cramping occurs on the first or second day of the menstrual cycle.

According to the United States Department of Health and Human Services, roughly 52 percent of women in the United States between the ages of 15 to 51 suffer from some level of menstrual cramps. Of these, 10 percent have such a severe condition as to require a doctor visit. Statistics from the American College of Obstetrics and Gynecology reveal that menstrual cramping represents the number one cause of missed school and work days among women. In fact, menstrual cramping accounts for an astonishing 140 million hours of lost school and work every year.

Despite these alarming statistics, very little has been done to advance the art of treating menstrual cramping. Traditional methods of chemical treatment include taking an over-the-counter pain killer which includes ibuprofen as the active ingredient. Non-traditional methods include a regimen of taking calcium, Vitamin D and magnesium supplements. Non-medicinal ways of treatment typically include use of heat around the abdomen, such as a heating pad or taking a warm sitz-bath.

Each aforementioned treatment option has its limitations, and none actually work to treat the underlying medical cause of these cramps. Studies show how increased ingestion of ibuprofen may result in multiple adverse drug reactions (ADRs), as well as associated gastrointestinal (GI) effects and renal problems. Many women cannot always take chemical medications due to these problems as well as other undesirable side effects. Dietary supplements like calcium, Vitamin D and magnesium may help reduce pain but do not

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eliminate or treat the condition. Use of heat around the abdomen only offers at most temporary relief and does nothing more than mask the pain.

With the growing acceptance of complementary and alternative medicine (CAD), there is a need in the art for an effective yet non-chemical treatment of menstrual cramps. This is especially true with the large number of individuals whose personal and spiritual beliefs preclude use of chemical medicines like ibuprofen.

**SUMMARY OF THE INVENTION**

This invention solves the current limitations in the art of alleviating menstrual cramps through an alternative and non-chemical form of treatment. As menstrual cramping occurs when the uterine muscles contract too hard or fast resulting in the various tissue connected to (or located near) the uterus to expand, the present invention treats the condition through counteracting this excessive stretching. Specifically, to relieve the pain and discomfort associated with menstrual cramping, the invention employs compression at or proximate to each greater trochanter—the large, irregular eminence located at the top of the femur bone—at both lateral sides of the female hips. Through compressing the area adjacent to each greater trochanter, the ligaments and tendons proximate to the uterus relax, helping alleviate menstrual cramps and associated pain.

In the preferred embodiment, the method utilizes an apparatus utilizing one or more symmetrical tapered pads having an inner side and an outer side. Each outer side of each pad is semi-rigid while each inner side is flexible and compressible. The outer side of each pad is connected to one or more straps, each strap having a first end and a corresponding second end. A fastener is attached to the first end of each strap and a corresponding second fastener is attached to the second end of each strap. Both fasteners can be a buckle system, a latch system, Velcro or any other related locking system known in the art. In addition, a constricting device is located on or proximate to one pad sufficient to create a compression force through each strap when the first fastener and corresponding second fastener are connected to one another. Such constricting device may be a ratchet, pulley system or similar device known in the art.

In a second embodiment of the method, the symmetrically tapered pads are attached to one or more straps through a swivel bracket in order to vertically rotate the pad to conform with the user's hips.

In a third embodiment of the method, the inner bladder system supplants the flexible and compressible inner side of the pads. The inner bladder is filled with a gas or liquid sufficient to conform to the user's hips.

In a fourth embodiment of the method, the apparatus has one or more symmetrically tapered pads, each having an outer side and an inner side. The outer side of each pad is affixed to the inner side of a C-shaped belt. In addition, the C-shaped belt has a constricting device, which can include, but is not necessarily limited to, a spring-member (and/or screw based system attached to each pad) sufficient to compress each symmetrically tapered pad onto the greater trochanters of the user.

The inner portion of each aforementioned tapered pads can be made of any material which can be warmed to allow the benefits of heat to further treat menstrual pain.

The preferred embodiment of the method includes the steps of placing one or more pads proximate to the greater trochanters of a user; affixing each pad to one or more straps where each strap has a first end and a second end at the

opposite portion of each strap; connecting the first and second end of each strap through a fastener, and creating pressure sufficient to compress each said pad onto said user. Under this preferred method, 10 to 15 pounds of pressure is administered for between 5 to 10 minutes after the user reports the menstrual pain has subsided.

The method can also include the additional steps of shaping each pad to conform with the shape of the user's hip(s), as well as vertically rotating each pad through a swivel bracket into a position which further conforms with the shape of each hip. The systems and methods described herein are meant to not only treat menstrual cramping but also to provide relief from more minor episodes of menstrual pain and discomfort.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1A is a perspective of the environmental view of an apparatus to treat menstrual cramping according to one embodiment of the present invention;

FIG. 1B is a further perspective environmental view of the apparatus to treat menstrual cramping of FIG. 1A;

FIG. 2A shows a left perspective view of the apparatus;

FIG. 2B shows a right perspective view of the apparatus;

FIG. 3 shows a perspective view of the left part of an apparatus of FIG. 2A;

FIG. 4 shows a perspective view of the right part of the apparatus of FIG. 2B;

FIG. 5 shows a perspective view of a right pad of the apparatus;

FIG. 6 shows a partially cut away top view of the apparatus;

FIG. 7 shows a perspective view of the left pad of the apparatus showing how the left pad can be rotated;

FIG. 8A shows an exploded view of the left pad of the apparatus;

FIG. 8B shows a further exploded view of the left pad of the apparatus;

FIG. 9A shows a side view of the secondary left swivel bracket;

FIG. 9B shows a side view of the secondary right swivel bracket;

FIG. 10A shows an exploded view of the right part of the apparatus;

FIG. 10B shows a further exploded view of the right part of the apparatus;

FIG. 11 shows a view of the primary left swivel bracket;

FIG. 12 shows a view of the primary right swivel bracket;

FIGS. 13(a) and 13(b) show a perspective view of two embodiments of a constricting device. FIG. 13(a) shows a ratchet system, while FIG. 13(b) shows a pulley system;

FIGS. 14(a) and 14(b) show two different embodiments of the two-part construction for each pad. FIG. 14(a) is an exploded view of a two-part construction having a semi-rigid outer side and a flexible and compressible inner side. FIG. 14(b) shows the two-part construction having a semi-rigid outer side and an inner bladder system;

FIG. 15 shows a perspective view of the front of a pad having symmetrically tapered portions;

FIG. 16 shows an exploded view of one embodiment, which includes a ratchet as the constricting device; and

FIG. 17 shows a perspective view of another embodiment of the apparatus having a rigid C-shaped belt.

#### DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to a method and apparatus to non-chemically relieve menstrual cramping through use of compression at or proximate to the greater trochanters.

Throughout the embodiments described below, an apparatus to treat menstrual cramping is denoted by the numeric label **100** as shown in FIG. 1A.

The typical cause of menstrual cramping is excessive stretching of the muscles and tendons surrounding the uterus when expelling unwanted materials on the inner uterine wall during menstruation. When these muscles contract too fast or hard, it results in stretching of tissue resulting in the pain and discomfort associated with menstrual cramping. FIG. 1B illustrates how the apparatus **100** includes a left pad member **340** and a right pad member **360** laterally placed at each side of the user's (U) body near or proximate to the hips. By placing both pad members **340** and **360** proximate to the greater trochanters (located below the hips) and creating sufficient compression, the apparatus **100** decreases the stretching of tendons and ligaments surrounding the uterus, thus relaxing the tissue and alleviating cramping after a period of time and regimen of use.

A more detailed view of the individual components of one embodiment of apparatus **100** is offered by FIG. 2A. The apparatus **100** includes one or more essentially planar pads, preferably a left pad **180** and right pad **200**. When assembled in the apparatus **100**, each pad **180** and **200** provides a vertical surface for contact with the lateral sides of the user's (U) body proximate to the hips.

Each pad **180** and **200** is preferably made of two-part construction which includes a semi-rigid or hard outer side **680** and a more flexible and compressible inner side **620** (described in FIG. 6 below). In addition to at least one pad **200**, the apparatus **100** also comprises one or more straps **120**, each having an inner side **300** and an outer side **320**. Each strap **120** likewise has a first end **280** and a corresponding second end **260** (shown in FIG. 6) connected to each other via a fastener **140**.

In the embodiment shown in FIG. 2A, the fastener **140** is a push-button release type system located at or proximate to the left pad **180**. However, such fastener **140** can be located anywhere along the circuit of the apparatus **100**. Here, the push button fastener **140** has an exterior side **380**, an interior side **400** (described in FIG. 8B below), a first end **420** and a second end **440**. The fastener **140** is attached to the outer side **320** of the strap **120**. While a push-button type system is one means for securing the first end **280** and corresponding second end **260** of the strap **120**, any other acceptable fastening system may be used. This can include a latch system, a buckle system, Velcro, or any fastening system known to those skilled in the art.

FIG. 2B provides another perspective of the apparatus **100** illustrated in FIG. 2A, showing a more detailed assembly of the right pad member **360**. In this embodiment, the strap **120** connects to the right pad member **360** through a sleeve **160** of sufficient shape and size as to receive the strap **120**. The invention is not restricted to use of a sleeve **160** to connect each pad member **340** or **360** to the one of more straps **120** of the apparatus **100**. Rather, one of ordinary skill in the art can use any known system to affix or connect each strap **120** to each pad member **340** or **360**. However, it is preferable that such system allow at least one pad **180** or **200** to move along the circuit of the strap(s) **120** sufficient to place properly place both pads **180** and **200** proximate to the user's (U) hips.

A more detailed perspective of the left pad **180** and fastener **140** is provided in FIG. 3. As illustrated, each pad has a front portion **760** and a rear portion **740**. While the illustrated shape of each pad **180** (and **200**) is tapered from the rear portion **740** to the front portion **760**, a variety of shapes may be used based upon the user's (U) preference. One preferred shape is where both the rear portion **740** and front portion **760** are symmetri-

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cally tapered from the center of the pad 180 (as shown in more detail in FIG. 15 below). The invention also contemplates creating a mold of the user's (U) hips sufficient to create a custom shape for both the left pad 180 and right pad 200. The invention further contemplates making the outer side 680 of each pad 180 and 200 of a sufficiently malleable and formable material which can be formed to mirror the unique shape of the user's (U) hips.

FIG. 4 provides a more detailed illustration of the right pad 200 and sleeve 160. Similar to the left pad 180, the right pad 200 has a front portion 940 and a rear portion 960. Likewise, the right pad 200 tapers from the rear portion 960 towards the front portion 940. Again, the sleeve 160 is shaped to have a bore-through hollow opening 500 of sufficient size and shape as to receive one or more straps 120. As discussed in more detail below in FIGS. 13(a) and 13(b), the present invention includes (in addition to the fastener 140) a constricting device 1100 to be located on or proximate to a pad 200. The constricting device 1100 can be a ratchet, pulley system or any similar mechanism which creates compression known to those ordinarily skilled in the art.

A more detailed view of the inner side 660 of the right pad 200 is offered by FIG. 5. As the inner side 660 has direct contact with the user's (U) hips, it should be made of foam, neoprene or another compressible and hypoallergenic material known by those skilled in the art. It is also preferred that each pad 180 and 200 includes an outer housing 161 (shown in FIG. 14(b) and described below) to maintain the components of each pad, including the semi rigid outer side 680 and inner side 660. Such outer housing 161 should be washable and also hypoallergenic.

In addition to the malleable properties of each pad's two-part construction, one embodiment of the apparatus 100 includes use of vertical rotatable members to connect the strap(s) 120 to each pad 180 and 200, to greater conform to the individual shape of each user's (U) hips. FIG. 6 offers a partial cut away top view of both the left pad member 340 and right pad member 360, which includes these vertical rotatable members. The right pad member 360 illustrated in FIG. 6, includes a right pad 200 comprising a front portion 940 and a rear portion 960, which includes a semi-rigid outer side 900 and a flexible and compressible inner side 660. Located at the center of the semi-rigid outer side 900 of the right pad 200 is a female receiving notch 980 for use in connecting the sleeve 160 with a rotatable male swivel bracket 920 having an upper wall 1000. The female receiving notch 980 has a cavity 692, created by a flat upper wall 690 parallel with the semi-rigid outer side 900 of the right pad 200, sufficient to receive the rotatable male swivel bracket 920. The sleeve 160 is affixed to the upper wall 1000 of the rotatable male swivel bracket 920 to ultimately connect with the right pad 200 to form the right pad member 360. As illustrated, the sleeve 160 has a front portion 540 and a rear portion 520, and an outer side portion 560.

FIG. 6 also provides a more detailed view of the components of the left pad member 340, which in this embodiment positions the fastener 140 on the left pad 180. Just as with the right pad 200, the left pad 180 includes a semi-rigid or hard outer side 680 and a more flexible and compressible inner side 620. Attached to the semi-rigid outer side 680 is a female receiving notch 592, capable of receiving a rotatable male swivel bracket 700 having an upper planar member 720 and a lower planar member 730 connected to interior side 400 of the fastener 140. The fastener 140 depicted in FIG. 6 has an exterior side 380, a first end 420, a second end 440, and a push button 460 to release the first end 280 of the strap 120. The second end 260 of the strap 120 is attached to the fastener 140

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at or near its first end 420. Release of the first end 280 of the strap 120 is achieved through a spring-action member 480.

FIG. 7 illustrates how the embodiment shown in FIG. 6 allows the left pad 180 to rotate into a position which conforms with the user's (U) unique hip shape.

FIG. 8A is an exploded view of the left pad 180 shown in FIGS. 6 and 7. As shown, the fastener 140 having a push button release 460 is connected to the left pad 180 at its interior side 400 to the lower planar member 730 of the swivel bracket 700. Here, the bracket is a circular disc 800, which attaches to a corresponding circular recess 590 located on the semi-rigid outer side 680 of the left pad 180. The semi-rigid outer side 680 then connects to the flexible and compressible inner side 620 at its outer portion 600. Combination of the swivel bracket 700 and both the inner 620 and outer 680 sides of the left pad 180 comprise the left swivel member 220 of the apparatus 100. FIG. 8B represents a 180 degree view of the left pad 180 shown in the exploded view of FIG. 8A.

Detailed description of FIGS. 9A and 9B is incorporated by reference from the parent application.

FIG. 10A is an exploded view of the right pad 200 of FIG. 6. Here, the sleeve 160 connects with the circular bracket 920 at the sleeve's 160 back portion 580. The circular bracket 920 is of two-part construction having a larger circular outer ring 1040 and a smaller circular inner ring 1020. The smaller circular inner ring 1020 connects with exterior side 900 of the right pad 200 at its upper side 980. FIG. 10B represents a 180 degree view of the right pad 200 shown in the exploded view of FIG. 10A.

FIGS. 11 and 12 both offer perspective views how the semi-rigid outer members 680 and 900 of the left pad 180 and right pad 200 connect with the smaller circular inner rings 1020 of each swivel bracket 920. FIG. 11 illustrates how the left pad 180 includes a recess 590 of sufficient size and dimension to receive the smaller circular ring 1020 of the swivel bracket 920. Likewise, FIG. 12 shows a similar recess on the flat upper wall 690 of the semi-rigid outer side 900 of the right pad 200 sufficient to receive the rotatable male swivel bracket 920.

FIGS. 13(a) and 13(b) are perspective views of two different embodiments of the constricting device 1100 affixed to the right pad 200. FIG. 13(a) shows the fastener 140, as a buckle system, having a first fastener 141 and a corresponding second fastener 142. The first fastener 141 has an opening 143 of sufficient size and dimension to receive the one or more flexible prongs 144 of the corresponding second fastener 142.

The constricting device 1100 illustrated in FIG. 13(a) is a ratchet, having a ratchet strap 1101 with multiple teeth 1104, which is fed into a locking member 1102. The locking member 1102 is connected to the semi-rigid outer side 900 of the right pad 200. The ratchet strap 1101 has a back portion 1105 and front portion 1106. The back portion 1105 is connected to the first end 280 of the strap(s) 120. The locking member 1102 includes a rotatable handle 1103, which rotates back and forth sufficient to pull the teeth 1104 of the ratchet strap 1101 to tighten, as well as release to reduce and/or eliminate compression. Both the right pad 200 and left pad 180 of the embodiment are encased by an outer housing 161 secured by a zipper system 162.

Another embodiment of the constricting device 1100 is the pulley system shown in FIG. 13(b). This pulley system is connected to the semi-rigid outer side 900 of the right pad 200. Here, the constricting device 1100 is comprised of multiple strings 1110 connected to the first end 280 of the strap(s) 120. Each of the strings 1110 pass through a rigid pulley chamber 1111, and connect to a circular spindle 1112. Affixed to the top of the spindle 1112 is a rotatable exterior handle

1113. Through the mechanical advantage of twisting the strings 1110 around the spindle 1112, the strings 1110 are pulled into the rigid pulley chamber 1111, which in turn constricts the strap(s) 120.

FIGS. 14(a) and 14(b) illustrate two different embodiments of the two-part construction of the pad 200. FIG. 14(a) is an exploded view showing how the pad member 360 includes a semi-rigid outer side 900 and a flexible compressible inner side 660. The semi-rigid outer side 900 has a front portion 940 and rear portion 960 and rests on the back 640 of the compressible inner side 660. The semi-rigid outer side 900 can be affixed to the strap(s) 120. The flexible compressible inner side 660 has a uniform stepped shape, such that when the apparatus 100 is compressed, the pad 200 can flex inward.

FIG. 14(b) shows another two-part construction for the right pad member 360. Here, the flexible compressible inner side 660 of the pad 200 is a liquid or gas filled inner bladder 661. The amount of liquid or gas which is placed in the inner bladder 661 can be adjusted to the user's (U) individual preferences. The inner bladder 661 is positioned or affixed on the semi-rigid outer side 900 of the pad 200. An outer housing 161 of sufficient size and dimension can be placed around both the bladder 661 and semi-rigid outer side 900, which can be closed via a zipper system 162. The housing 161 also contains a left and right opening 163 of sufficient size and dimension to allow the strap 120 to pass through and/or be affixed to the semi-rigid outer side 900.

FIG. 15 shows a perspective of the left pad 180, where both the rear portion 740 and front portion 760 are symmetrically tapered from the center.

FIG. 16 offers an exploded view of the components of the apparatus 100, where the constricting device 1110 is a ratchet. The embodiment illustrates how both the left pad 180 and right pad 200 are each placed into an outer housing 161. Each housing 161 has opening on both the right and left sides of sufficient size and dimension to allow the strap 120 to pass through. In this embodiment, the strap 120 is affixed to the left pad 180 and right pad 200. Each sleeve 160 is placed around the flexible compressible inner side 660, the semi-rigid outer side 900, as well as the strap 120, and secured by closing the zipper system 161. Here, the right pad member 360 is attached to the locking member 1102. The back portion 1105 of the ratchet strap 1101 connects with the first end 280 of the strap(s) 120. When the rotatable handle 1103 pivots back and forth, it engages the teeth 1104 of the ratchet strap 1101, which causes the apparatus 100 to compress.

FIG. 17 shows an alternative embodiment of the invention where the strap 120 and fastener 140 described above is replaced by a rigid C-Shaped belt 1200. The belt 1200 has a first end 1201 and a corresponding second end 1202, with an opening 1203 of sufficient size and dimension to allow the belt 1200 to be placed around the user (U)'s hips. The apparatus 100 can include (but does not necessarily require) a compression device 1100, such as a spring, at or proximate to the center of the belt 1200 to create an internal compression force. At the inner side 1204 of the belt 1200, a left pad 180 and right pad 200 are attached. Here, the compression device 1100 can also be a screw based system 1205 to twist both pads 180 and 200 in place and to create a sufficient compression force onto the user's hips proximate to each greater trochanter. Under such a system, each pad 180 and 200 can be vertically rotated via the screw based system 1205 to conform to the individual user's hips and preference. Other systems, known to those ordinary skilled in the art, can be used to attach the pads 180 and 200 to the belt 1200 and to be compressed onto the user's (U) hips.

In addition to the apparatus 100, the invention also relates to a specific method of relieving the pain and discomfort associated with menstrual cramping. As previously discussed, the method is designed to reduce the stretching of ligaments and tendons surrounding the uterus during menstruation.

The general method of treatment requires use of an apparatus 100 as described above, or any similar mechanism which allows performance of the steps of: first, dimensioning one or more pads 180 and/or 200 proximate to the greater trochanters of the female user (U) and forming each pad to conform to their hips; second, affixing the pad 180 or pads 180, 200 to one or more straps 120 having a first end 280 and a corresponding second end 260 at the opposite portion of the strap(s) 120; third, connecting the first end 280 and second end 260 of each strap 120; and fourth, creating a compression sufficient to compress each pad 180 or pads 180, 200 onto the user (U). Between 10 to 15 pounds of pressure, should be administered during each treatment, which each session lasting between 5 to 10 minutes after the user (U) reports the menstrual pain or discomfort has subsided. However, individual treatment regimens may vary as to both length and pressure.

Apart from the general method described above, the method of treatment may also include the step of filling an inner bladder 661 with sufficient liquid or gas as to conform with the unique shape of the user's (U) hips, if an internal bladder 661 as described in FIG. 14(b) is used. If desired, such bladder 661 could be heated to help further treat and alleviate the pain associated with menstrual cramping.

The method could further include the step of shaping each malleable pad 180 or pads 180, 200 to conform with the shape of the user's hips. Moreover, the method could additionally include the step of rotating each pad to a position which further conforms with the shape of the user's (U) hips through use of the rotating member described in FIG. 6 and FIG. 7 above.

The term "comprises" is used herein to mean that other ingredients, ingredients, steps, etc. are optionally present. When reference is made herein to a method comprising two or more defined steps, the steps can be carried in any order or simultaneously (except where the context excludes that possibility), and the method can include one or more steps which are carried out before any of the defined steps, between two of the defined steps, or after all of the defined steps (except where the context excludes that possibility).

Many modifications and other embodiments of the invention will come to the mind of one skilled in the art having the benefit of the teachings presented in the foregoing descriptions and the associated drawings. Therefore, it is understood that the invention is not to be limited to the specific embodiments disclosed, and that modifications and embodiments are intended to be included within the scope of the appended claims.

What is claimed is:

1. A method for relieving menstrual cramping, the method comprising the steps of:

positioning one or more pads proximate greater trochanters on lateral sides of a torso of a user;

affixing the one or more pads to one or more straps, wherein each of the one or more straps has a first end and a second end at an opposite portion of the one or more straps;

connecting the first end and the second end of each of the one or more straps, wherein the connecting provides sufficient pressure for holding the one or more pads against the torso of the user; and

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applying pressure to the one or more pads, wherein the pressure is applied through a ratcheting device.

2. The method for relieving menstrual cramping according to claim 1, further comprising the step of heating at least one of the one or more pads.

3. The method for relieving menstrual cramping according to claim 2, wherein at least one of the one or more pads is heated prior to positioning the one or more pads proximate the greater trochanters.

4. The method for relieving menstrual cramping according to claim 2, wherein at least one of the one or more pads is heated after the one or more pads is positioned proximate the greater trochanters.

5. The method for relieving menstrual cramping according to claim 1, further comprising the steps of:

providing an inner bladder within at least one of the one or more pads; and

filling the inner bladder device with at least one of a gas and a liquid.

6. The method for relieving menstrual cramping according to claim 1, wherein about 10 to 15 pounds of pressure is applied to the one or more pads.

7. The method for relieving menstrual cramping according to claim 1, wherein the pressure is applied for between about 5 to 10 minutes after the user reports the menstrual pain has subsided.

8. The method for relieving menstrual cramping according to claim 1, further comprising the steps of shaping each of the one or more pads to conform to a shape of a hip of the user.

9. The method for relieving menstrual cramping according to claim 1, further comprising the step of rotating each of the one or more pads to a position which conforms to a shape of a hip of the user.

10. A method for relieving menstrual cramping, the method comprising the steps of:

positioning one or more pads proximate greater trochanters on lateral sides of a torso of a user;

affixing the one or more pads to one or more straps, wherein each of the one or more straps has a first end and a second end at an opposite portion of the one or more straps;

connecting the first end and the second end of each of the one or more straps, wherein the connecting provides sufficient pressure for holding the one or more pads against the torso of the user;

applying pressure to the one or more pads;

providing an inner bladder within at least one of the one or more pads; and

filling the inner bladder device with at least one of a gas and a liquid.

11. The method for relieving menstrual cramping according to claim 10, further comprising the step of heating at least one of the one or more pads.

12. The method for relieving menstrual cramping according to claim 11, wherein at least one of the one or more pads is heated prior to positioning the one or more pads proximate the greater trochanters.

13. The method for relieving menstrual cramping according to claim 11, wherein at least one of the one or more pads is heated after the one or more pads is positioned proximate the greater trochanters.

14. The method for relieving menstrual cramping according to claim 10, wherein about 10 to 15 pounds of pressure is applied to the one or more pads.

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15. The method for relieving menstrual cramping according to claim 10, wherein the pressure is applied for between about 5 to 10 minutes after the user reports the menstrual pain has subsided.

16. The method for relieving menstrual cramping according to claim 10, wherein the pressure is applied through a ratcheting device.

17. A method for relieving menstrual cramping, the method comprising the steps of:

positioning one or more pads proximate greater trochanters on lateral sides of a torso of a user;

providing an inner bladder within at least one of the one or more pads;

filling at least one inner bladder with at least one of a gas and a liquid;

affixing the one or more pads to one or more straps, wherein each of the one or more straps has a first end and a second end at an opposite portion of the one or more straps;

connecting the first end and the second end of each of the one or more straps, wherein the connecting provides sufficient pressure for holding the one or more pads against the torso of the user; and

applying pressure to the one or more pads, wherein the pressure is applied through a constricting device.

18. The method for relieving menstrual cramping according to claim 17, further comprising the step of heating at least one of the one or more pads.

19. The method for relieving menstrual cramping according to claim 18, wherein at least one of the one or more pads is heated prior to positioning the one or more pads proximate the greater trochanters.

20. The method for relieving menstrual cramping according to claim 17, wherein about 10 to 15 pounds of pressure is applied to the one or more pads.

21. The method for relieving menstrual cramping according to claim 17, wherein the pressure is applied for between about 5 to 10 minutes after the user reports the menstrual pain has subsided.

22. The method for relieving menstrual cramping according to claim 17, further comprising the steps of shaping each of the one or more pads to conform to a shape of a hip of the user.

23. A method for relieving menstrual cramping, the method comprising the steps of:

positioning one or more pads proximate greater trochanters on lateral sides of a torso of a user;

affixing the one or more pads to one or more straps, wherein each of the one or more straps has a first end and a second end at an opposite portion of the one or more straps;

connecting the first end and the second end of each of the one or more straps, wherein the connecting provides sufficient pressure for holding the one or more pads against the torso of the user;

applying pressure to the one or more pads;

providing an inner bladder within at least one of the one or more pads;

filling the inner bladder device with at least one of a gas and a liquid; and

heating at least one of the one or more pads.

24. The method for relieving menstrual cramping according to claim 23, wherein the pressure is applied with a ratcheting device.

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25. The method for relieving menstrual cramping according to claim 23, wherein at least one of the one or more pads is heated prior to positioning the one or more pads proximate the greater trochanters.

26. The method for relieving menstrual cramping according to claim 23, wherein at least one of the one or more pads is heated after the one or more pads is positioned proximate the greater trochanters.

27. The method for relieving menstrual cramping according to claim 23, wherein the pressure is applied for between about 5 to 10 minutes after the user reports the menstrual pain has subsided.

28. A method for relieving a woman's menstrual cramping, the method comprising the steps of:

positioning at least one pad proximate at least one of the woman's greater trochanters along a corresponding side of the woman's torso;

affixing a pressure application means to the at least one pad;

applying pressure to the at least one pad through the pressure application device; and

rotating the at least one pad to a position which conforms to a shape of a hip of the woman.

29. The method for relieving menstrual cramping according to claim 28, further comprising the step of heating the at least one pad.

30. The method for relieving menstrual cramping according to claim 28, wherein about 10 to 15 pounds of pressure is applied to the at least one pad.

31. The method for relieving menstrual cramping according to claim 28, wherein the pressure is applied for between about 5 to 10 minutes after the woman reports the menstrual pain has subsided.

32. The method for relieving menstrual cramping according to claim 28, further comprising the steps of shaping the at least one pad to conform to a shape of a hip of the woman.

33. A method for relieving menstrual cramping, the method comprising the steps of:

positioning one or more pads proximate greater trochanters on lateral sides of a torso of a user;

affixing the one or more pads to one or more straps, wherein each of the one or more straps has a first end and a second end at an opposite portion of the one or more straps;

connecting the first end and the second end of each of the one or more straps, wherein the connecting provides sufficient pressure for holding the one or more pads against the torso of the user;

applying pressure to the one or more pads, wherein the pressure is applied through a constricting device; and heating at least one of the one or more pads;

wherein at least one of the one or more pads is heated after the one or more pads is positioned proximate the greater trochanters.

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34. A method for relieving menstrual cramping, the method comprising the steps of:

positioning one or more pads proximate greater trochanters on lateral sides of a torso of a user;

affixing the one or more pads to one or more straps, wherein each of the one or more straps has a first end and a second end at an opposite portion of the one or more straps;

connecting the first end and the second end of each of the one or more straps, wherein the connecting provides sufficient pressure for holding the one or more pads against the torso of the user;

applying pressure to the one or more pads, wherein the pressure is applied through a constricting device; and rotating each of the one or more pads to a position which conforms to a shape of a hip of the user.

35. A method for relieving a woman's menstrual cramping, the method comprising the steps of:

positioning at least one pad proximate at least one of the woman's greater trochanters along a corresponding side of the woman's torso;

affixing a pressure application device to the at least one pad;

applying pressure to the at least one pad through the pressure application device;

providing an inner bladder within the at least one pad; and filling the inner bladder with at least one of a gas and a liquid.

36. A method for relieving a woman's menstrual cramping, the method comprising the steps of:

positioning at least one pad proximate at least one of the woman's greater trochanters along a corresponding side of the woman's torso;

affixing a pressure application device to the at least one pad;

applying pressure to the at least one pad through the pressure application device; and

heating the at least one pad; wherein the at least one pad is heated prior to positioning the at least one pad proximate the greater trochanter.

37. A method for relieving a woman's menstrual cramping, the method comprising the steps of:

positioning at least one pad proximate at least one of the woman's greater trochanters along a corresponding side of the woman's torso;

affixing a pressure application device to the at least one pad;

applying pressure to the at least one pad through the pressure application device; and

heating the at least one pad; wherein the at least one pad is heated after the at least one pad is positioned proximate the greater trochanter.

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